

COAL AGE

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The Tide in Bituminous Affairs

WHAT does the prevailing slump in bituminous-coal production and prices portend? How far down the scale will both descend and when, and what condition will make for an upturn? These and related questions are the chief concern of the soft-coal industry today. In view of the facts disclosed by the government's survey of stocks, the answer is not far removed. Relative to consumption, stocks of bituminous coal on Nov. 1 were nearly as great as when, on Nov. 11, 1918, they totaled the greatest in history—63,000,000 tons. The spurt in buying and production that preceded the threat of a railroad strike in October, last, surfeited the country with steam, domestic and all other kinds of coal.

The holiday season is approaching, when all productive enterprises normally slow down and industrials seek to reduce inventories for the annual stock taking. Were production of coal alone to be held as an index of industrial activity, it might well be inferred that business was fast going to pot, but it is only the coal business that is unduly depressed now. The story told by the stock figures is of an oversold, oversupplied market. Consumption of coal—that is, industry—is progressing slowly but surely upward; satisfactory evidence outside the statistics of coal attests to this, but the coal that is being burned is not all mined currently; for several weeks stockpiles have been attacked as if the winter were over.

For the coal man the prospects for the ensuing weeks of this year and perhaps the early weeks in January are not promising. Even anthracite is moving slowly, current output backing up in producers' storage pending the arrival of wintry blasts. The output of bituminous coal is descending at such a rate as to threaten an approach to the level of two years ago, when union mines were on strike and none but non-union were operating. There is a suggestion in this circumstance that perhaps again it is the non-union districts that are doing the business, with union mines idle because the miners prefer a minimum of work at present wages to a greater share of the total work at lower wages—a strike in fact, it seems, though not in name.

Of course, from the standpoint of national safety and convenience and according to past experiences, the market is really not oversold. The country as a whole has none too much coal on hand for this time of year, even were there no untoward difficulties in the offing. The coal operators and distributors as a whole have not overdone this thing of putting coal on the market, even if some have been and still are overzealous in cutting prices to keep operating. Circumstances over which the coal seller has no control have operated to produce present conditions, and among these the question of freights has figured prominently.

Unwarranted expectations, soon to be if not already dissipated, of early reductions in transportation costs have influenced some to defer buying, and since the approval of the tax bill last month all who are able to do so

are waiting until after Jan. 1 to make further purchases in order to avoid the transportation tax.

Meanwhile, with consumption gaining, a demand is being accumulated that will most certainly come forth in January. No flood of business can be expected, but there is certain to be a return to the comparatively better times of August, September and October. The more careful buyers are watching the market and will replenish the stocks they are now using, with coal at cheaper delivered prices in January. Prices will recover as spring approaches. In the meantime there is but one course for the producers to pursue; it is the course that any and all business follows under like circumstances—reduction in output. Price is certainly not moving coal today. Some distributors who have positive instructions to move the output of certain mines report that coal can hardly be given away this month. Fortunately for the good of all, this practice is limited.

Are We Ready for the Temple of Peace?

THERE is no subject of current discussion at once apparently so fruitless and for the moment profitless and yet so general as that relating to the probable outcome of the impending wage negotiations between the United Mine Workers and the coal operators. With few, but nevertheless comparatively influential exceptions, there is no disposition or wish to overthrow the union of the coal miners and to discard the ideal of collective bargaining. In fact the only instances of this are the result of stern necessity and flow from a stubborn adherence to already flaunted contracts by the international officers of the miners' union.

In Washington the union has been overthrown by the concerted action of operators and consuming public because no alternative was found permitting the coal industry there to live. Idle and hungry miners in the New River field and in parts of northern West Virginia and Maryland are reported to be of a disposition to repudiate the union that will not recognize their right collectively to work at lower wages. These are small but at the same time significant incidents.

The full weight of consumer opinion is with the producers in favor of reduction in the price of coal through lower wage rates. The householder has borne the brunt of the high costs, and in no substantial amount, if at all, has he benefited from the sagging of the market; distress coal has gone to the industrials, which is an explanation of why the average man has no idea that the prices of steam coal have dropped so considerably and is not influenced by the fact when he knows it. Therefore the average American householder is going to support any move to cheapen his fuel, and as he learns that wages influence the cost he is going to encourage wage reductions. This of course is an asset to the producer and will be a factor in the settlement.

The practical man—the coal operator who must on the

one hand meet the urgent cry of the consumer for lower prices and on the other face the prospect of negotiating with the union miner for lower wage rates—wants to effect a settlement by the well-tryed method of the strike. There is well-grounded belief for the idea that the miners will never willingly agree to accept the reduction the situation demands, and there is ample experience to warrant the conclusion that arbitration would only result in a compromise. To the men who for twenty-five years have fought their way through scale meetings and wage negotiations this is an occasion that calls for close ranks and a determined stand on the part of the operators. To the rank and file as well as the leaders among the coal producers the proper thing is to have a showdown, with "hands off" on the part of the public and the government. The coal industry will ask only that it be left alone to take care of its own troubles next spring, and we believe that if there is no interference from outside the operators can and will put wages down to an economic level.

But will the government stand by without attempting to referee the contest? What had President Harding in mind, last week, in his message to the Congress, when he said, "so we might well have plans of conference, of common counsel, of mediation, and arbitration, and judicial determination in controversies between labor and capital. . . . It should be possible to set up judicial or quasi-judicial tribunals for the consideration of and determination of all disputes which menace the public welfare. In an industrial society such as ours the strike, the lockout and the boycott are as much out of place and as disastrous in their results as in war, or armed revolution in the domain of politics"?

These and the accompanying text are fine words; is there a plan behind them? Will the country stock up for a siege and fight it out in the old way, or is there developing such a sentiment against the strike *per se* that the participants must perforce move into President Harding's "temple of peace in industry, which a rejoicing nation would acclaim"?

Would Forgiving Our Debtors Be Good Business?

AN HONORED contemporary, the *Iron and Coal Trades Review*, of London, discusses editorially in a recent issue Europe's debt to America. Reciting the stupendous totals that Great Britain, France, Belgium, Italy, Poland and others were advanced by our government and our difficulty in collecting even interest so long as we continue to export to Europe more than Europe sells us, the *Review* concludes that "signs may be discovered that American opinion is changing from the relentless 'pay all that thou owest' of a few months ago."

There are not lacking in this country advocates of a policy of forgiving these debts, on the theory that if from no other standpoint it would be good business, because until our debtors are on their feet financially they cannot trade with us on a large scale, and without magnified trade our industries will languish and labor and capital be unemployed.

President Harding in his address to Congress last week urged the grant of Congressional authority for negotiating with our debtors the refunding of principal and interest on their debts and pointed out that no large action would be taken without the approval of the legislative branch, but that "there are minor problems inci-

dent to loan transactions and the safeguarding of our interests which cannot even be attempted without this authorization." There is no likelihood that the question is to be settled in all finality at once or soon. It is for the people of this country to decide, and we will be a long time in deciding for other than requiring ultimate settlement.

It is perhaps pertinent to note that the practical effect of the credit we extended abroad has been for the most part to carry at 4 per cent the foreign debt of belligerents. The more than four billion dollars the United States loaned Great Britain, for instance, relieved that country from calling in and perhaps selling at a sacrifice that amount of the "£4,000,000,000 of foreign securities which were the result of two centuries of foreign investments," as noted by the *Review*. With respect to some of the smaller and financially weaker debtors there is argument for generous treatment.

The President should have the legislation he seeks as an aid in bringing understanding into the situation. The country, we believe, has confidence that the Chief Executive is sufficiently well advised in this matter to work out the best possible solution of this large international problem.

BRITISH OBSERVERS NOW QUITE GENERALLY RECOGNIZE that their coal can become no cheaper, the only way to lower the cost to industry being by reducing transportation charges. The average reduction in the price of coal since January has been around 13s. 6d. per ton and the owners contend that it is now below the cost of production. The British railroads argue that they have made sacrifices and have brought their charges to the lowest economic limit, while the mining industry urges that the loss incurred by the railways through lower rates would only be temporary, since the accompanying stimulus to industry would insure an increased volume of freight.

The coal operators say that wages, which now constitute 75 per cent of the cost of coal production, can go no lower, that overhead and other charges are at a minimum and that it only remains for the railroads to make sacrifices if it is to realize its hope of ultimate trade revival. The distress among coal miners in many parts of Wales is acute and the miner's average earnings amount to 1s. 2½d. per hour for a 7-hour day and a 4½ or 5 day week. Rates on coal to London in January, 1920, were 7s. 5d. including wagon hire; these figures have now increased to 12s. 5d.

A slight increase in export demand has followed reduction in coal prices and the Welsh ports are congested with the best steam coal waiting for shipment. In Newcastle the collieries are booked for all they can produce during the first half of December.

All of which has a familiar ring.

AS A MEANS OF INCREASING CAR EFFICIENCY in times of stress and as a factor in reducing the cost of handling coal, recommendations from a railroad source have reached the Department of Commerce which suggest an increase in the number of coal trestles. If this comparatively inexpensive facility were more generally installed it would make an appreciable difference in handling costs and would enable the railroads to confine their coal movement almost entirely to hopper-bottom cars.

Problems of the Coal Industry Nearly Sixty Years Ago Differed Little from Those of To-Day

Coal in Carload Lots Billed at \$4.25 Per Ton in 1865—"Best Coal" Quoted at \$3 Two Years Later—Broker's Commission, 50c.—Delivery Hampered by Strike and Car Shortage

BY LOUIS C. MCCARTHY*

SOME interesting facts about conditions in the coal industry during the years 1865-7 as revealed by prices, car supply and labor activities are disclosed in some letters written at that time. The missives were unearthed by J. W. Searles, vice-president of the Pennsylvania Coal & Coke Corporation, among correspondence belonging to his late uncle, J. G. Searles. Some of the letters are reproduced herewith.

In a statement of carload shipments under date of Nov. 6, 1865, the price given is \$4.25 per net ton, the kind of coal shipped not being specified. For those far-off days, when Lincolnian simplicity still held sway, that seems a surprisingly high price, such things as "trusts," "interests" and coal barons being as yet un-

known. When it is remembered, however, the reconstruction years constituted a period of hitherto unexampled high prices, the charge does not occasion much astonishment. If \$4.25 per ton was the peak price, coal buyers cannot be said to have had a very great burden to bear, comparatively speaking. The conclusion that this was the peak price seems to be borne out by a letter dated May 6, 1867, which quotes "best coal" at \$3 per ton, the product of two other mines being listed at \$2.75. Slack sold at \$2.25 per ton Jan. 10, 1866.

From other correspondence in Mr. Searles' possession it is learned that the broker's commission was 50c. per ton at that time. The apparent magnitude of this charge is explained by the small tonnage handled—the exaction of a smaller commission probably would

*Associate editor, Coal Age.

Coal Prices Getting Back to Normalcy

On the statement of Nov. 6, 1865, coal is billed at \$4.25 per ton. A year and a half later the price had fallen to \$3 per ton for "best coal." A quotation of \$2.75 per ton also is given.

Mineral Ridge, Peacock & Washingtonville Coal,
JONATHAN WARNER & SONS,

Established in

Brier Hill, Mineral Ridge, Peacock & Washingtonville Coal,

And WASHINGTONVILLE COKE.

ALSO, MANUFACTURERS AND DEALERS IN PIG IRON,

JONATHAN WARNER,
S. J. WARNER,
J. S. WARNER.

Mineral Ridge, O., (Miles P. O.) Nov. 6, 1865

W. J. G. Searles

Mineral Ridge, Ohio

May 6, 1867

J. G. Searles Esq
Petroleum Center L

Dear Sir

you of 2nd or hand water
Our men have been indulging in a short strike and we are
out of coal to day. They have given us this morning
used we will send you the H. Coal as soon
as possible. Some to morning and but during the week
of our best coal which we are still selling at 3¢. We will get
the M. & P. mines & the Corp. pay the mine running this week
and will sell from either of these mines at 2.75 per ton on car
at 10¢. After this week we will have a good supply and
can fill your orders at the prices given above.

Yours Truly
Jonathan Warner

Enclosed
This is to call your attention to the
above prices.
Y. Searles

• 51.500

• 45.700

• 21.750

42.530

44.900

21.570

228.3500 11th Jan. 1865

you check at your bank our account & pay

Yours very respectfully

Jonathan Warner & Sons

JOHN MORRIS & CO.,
COAL & BLACK BAND ORE,
MINERAL RIDGE, O.

J. S. Charles, Esq.,
Franklin, Pa. }
Dear Sir, }
Mineral Ridge, O., Jan. 10th 1866.

In reply to your favor of 5th inst would say that we have sent your 2 cars of coal last week and will send the other tomorrow. we wrote you on 3rd inst giving you price of Black of 2²⁵ per ton. which letter we presume you have in this

Yours, Respectfully
John Morris & Co.

JOHN MORRIS & CO.,
COAL & BLACK BAND ORE,
MINERAL RIDGE, O.

J. S. Charles, Esq.,
Franklin, Pa. }
Dear Sir, }
Mineral Ridge, O., Nov. 27th 1865.

In reply to your favor of 24th inst would say that we have shipped you 3 cars of coal so far this month, and would have sent you considerable more could we get the cars. The 2 cars that we sent to Wrenn have been ordered for a long time by Mrs. Richmond of Wrenn. We suppose that you were getting about all the coal you want from Mineral Ridge and coal here, as we notice they are sending you about one car per day. We promised more coal than we could deliver owing to the scarcity of cars and are very sorry that we disappointed you. We will however promise to do better in the future, and as soon as we get in the our brick expect to see your smiling face frequently.

Yours, Respectfully
John Morris & Co.

JOHN MORRIS & CO.,
COAL & BLACK BAND ORE,
MINERAL RIDGE, O.

J. S. Charles Esq.
Franklin Pa

Mineral Ridge, O., Feb. 2nd 1866.

Dear Sir

In reply to your favor of the 15th inst at hand in reply to your order for two cars M. R. Coal & 2 cars Black Band Ore. We sent one car M. R. on receipt of your order & ordered the B. B. from E. Morris. He advised us that he had sent the first car on receipt of the order when having used your order for "another," we directed him to send it & suppose he did. We send our best regards down this morning to Mr. New branch has gone & to ship two cars more. We are idle in mines on the Ridge and in the Mahoning Valley all on a strike. E. Morris only working; for some reason not explained his men are working. We think this strike is about played out & hope to be at work in a few days. Will write you again tomorrow.

Yours Truly
John Morris & Co.

STRIKES AND CAR SHORTAGE WERE IN EVIDENCE EVEN IN THE SIXTIES

have rendered it difficult for a broker to make a living.

Latter-day commentators on mining and other industrial affairs are wont to emphasize the complexities attendant upon twentieth century progress as contrasted with the so-called simplicity of the "good old days." To the World War also is attributed the bringing about of conditions hitherto undreamed of. This was strikingly exemplified by the habit of blaming anything otherwise unexplainable on the war—c'est la guerre, as the French said. Coal shortages at that time, for instance, were most frequently attributed to "car shortage"—wholly due to the World War. To imagine, however, that the condition was wholly new in 1918 or that it took a world war to bring it about is wholly erroneous, for John Morris & Co., under date of Nov. 27, 1865, express regret for delay in delivering coal "owing to a scarcity of cars."

That strikes of mine workers were far from being an unknown institution during the seething sixties is

shown in another communication from the same company, under date of Feb. 20, 1866, wherein it is stated: "We are idle—the miners on the Ridge and in the Mahoning Valley all on a strike. . . . We think this strike is about played out and hope to be at work in a few days."

As the typewriter had not at that time come into use, business correspondence had that intimate touch so conspicuously lacking in that of today, much of which bears that hallmark of the busy man "dictated but not read," frequently with the accompaniment of hieroglyphics in the corner suggesting a blackboard test in college football signals. The much-abused introductory sentence "Your favor of — at hand" is utilized more than once, showing that standardization had set in even at that early day. Can it be possible that versions of the American eleventh commandment—to smile—were then conspicuously plastered on the walls of stores, offices and workshops?

Buck Run Coal Co. Methods of Preparing and Storing Coal

Breaker Finished in Four Months—Fifty Per Cent of Output Is Rock, Keeping Eight Pickers Busy—Nineteen Breakermen Prepare 900 Tons of Coal Per Day—Steam Sizes Stored—Reclaimed by Belt Conveyors

BY DEVER C. ASHMEAD*
Kingston, Pa.

SHORTLY after this country entered the Great War, or, to be specific, on June, 18, 1917, the breaker of the Buck Run Coal Co., near Minersville, Pa., was totally destroyed by fire. This occurred at a time when the coal market was active. It thus became necessary to rebuild the breaker with all possible speed. To accomplish this result, however, when it was almost impossible to procure steel and when the railroads were jammed with traffic, was a difficult proposition.

Immediately after the fire a new steel breaker was designed and the order for its construction placed with the Bethlehem Fabricators, Inc. This firm furnished and erected the materials, the breaker being ready to handle coal by Oct. 29, 1917, or exactly 133 days after the fire. The first full day's run through this breaker was made on Nov. 4 of the same year, and operation has continued steadily ever since.

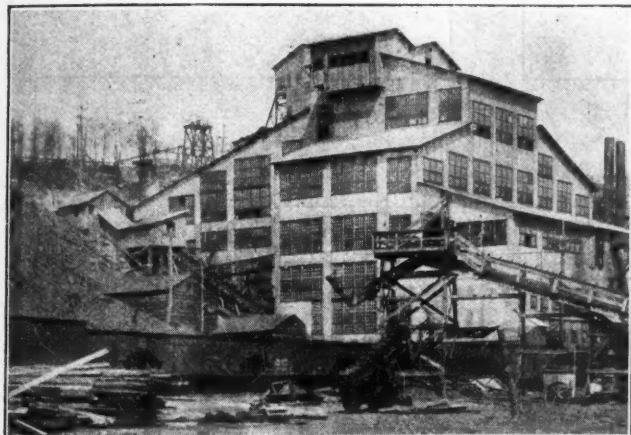
At this plant two distinct buildings are employed for the preparation of coal. One, the rock house, is used for the removal of foreign material, and the other, the

are loaded from chutes, it is practically impossible underground to separate the rock from the coal. As a result some exceedingly large lumps of rock reach the surface and a large force of men must be employed to remove this material. The rock constitutes as much as 50 per cent of the total output hoisted from this mine.

Eight men are employed on the picking table in the rock house, but even with this force the table is sometimes almost blocked by the large number of sizable rocks that must be handled. One of the accompanying illustrations shows the shaker and picking table in the rock house, and from it some idea may be gained of the size and amount of extraneous material accompanying the coal. The illustration shows a condition by no means unusual.

Rock from this picking table is sent to a large rock pocket located in the bottom of the rock house. Coal that has passed over the picking table joins the fine material previously separated from it and passes to a dragline conveyor (10) which transports it a distance of 300 ft., discharging it in the breaker at a point approximately half way between the ground level and the top of the building.

This conveyor (10) discharges to a shaker (11) upon which lump steamboat and finer coals are made. The lump coal (12) goes to a set of No. 1 rolls (15), after

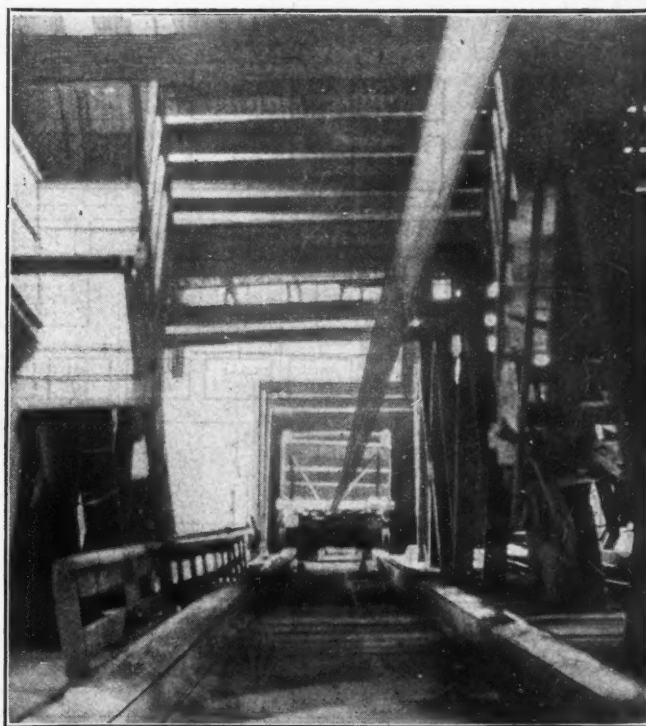


BUCK RUN COAL CO. BREAKER NEAR MINERSVILLE, PA.

Showing the permanent dragline conveyor used to load coal from the stock pile into railroad cars when the distance is too great for the belt conveyors to reach them. In the rear of the breaker may be seen the top of the rock house. From this point of view the two buildings appear as one.

breaker, serves for the sizing and preparation of the resulting product. The rock house, a building constructed of steel and concrete, is erected over the mouth of the slope and into its upper story come the monitors bearing coal from the mine. These dump their contents into a large feeding chute or pocket, (2) in the accompanying flow sheet. From this point a boy feeds the coal and rock onto a shaking screen (3), by which the lumps of coal and rock (4) are separated from the fine material (5).

The mixture of lump coal and rock then goes to a picking table (6), where the rock is removed by hand. As the coal beds in this mine pitch steeply and the cars



LOOKING DOWN MAIN SLOPE OF COLLIERY

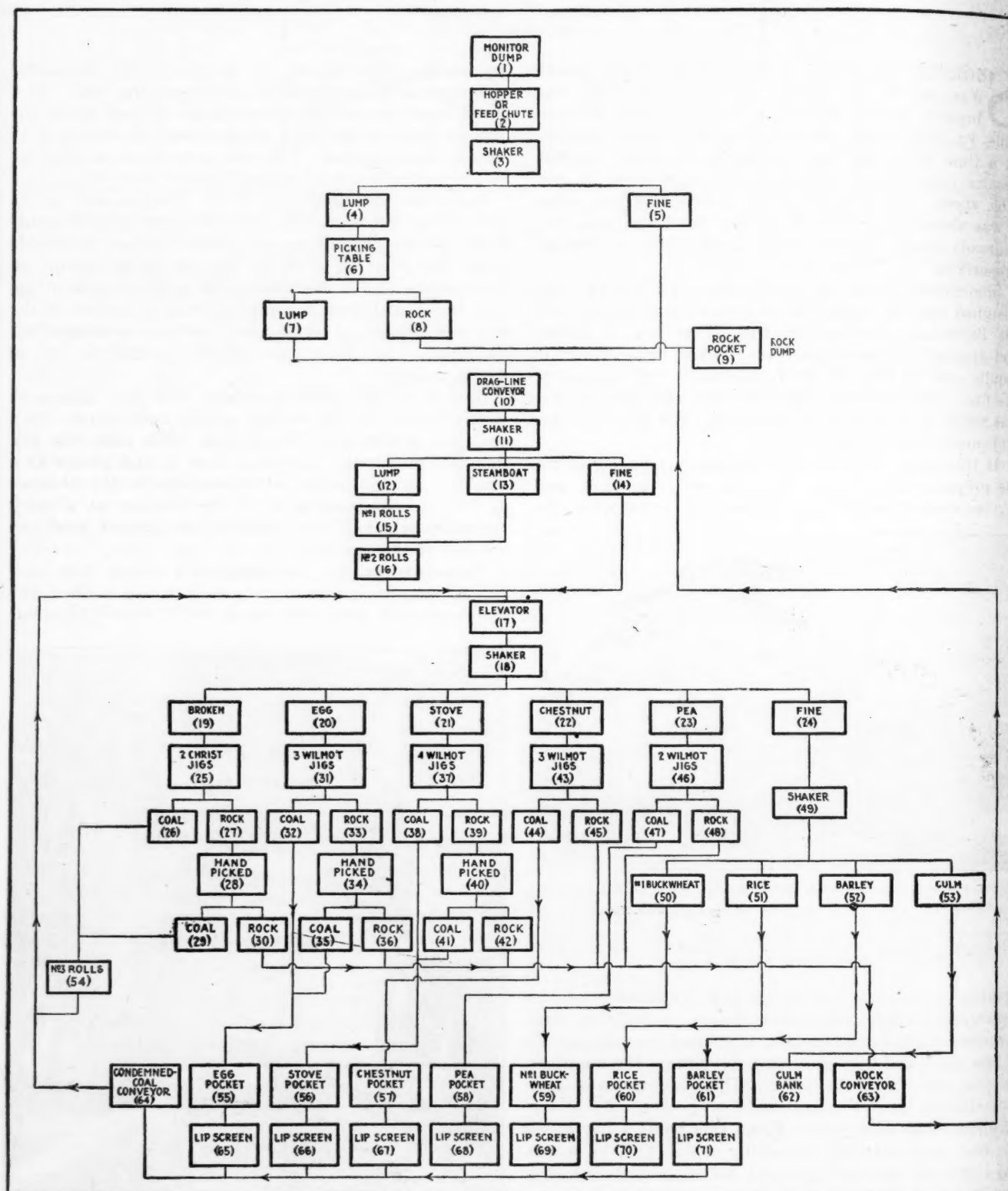
The monitors running on this slope have a capacity of 13,000 lb. and themselves weigh 13,340 lb. The rope was swinging when the photograph was taken from which the illustration is made. This with the foreshortening explains the "Halley's comet" effect between the monitor and the upper foreground.

*Anthracite Editor, *Coal Age*.

passing through which it is joined by the steamboat coal from the shaker, the two going to a set of No. 2 rolls (16). The product of this crusher is then taken by an elevator (17) and transferred to the top of the breaker. Here it is discharged to a shaker (18), by which broken, egg, stove, chestnut, pea and finer are separated.

Broken coal (19) from the shaker (18) above men-

tioned then passes to two Christ jigs, the rock from which is hand-picked and the coal recovered thrown back into the clean product. This clean coal is then sent to a set of No. 3 rolls (54) and is crushed to smaller size. From these rolls it is taken by elevator to the top of the breaker for re-treatment on shaker (18). The elevator (17) above mentioned is in two parts; the first section takes the condemned coal as well as that



FLOW SHEET OF ROCK HOUSE AND BREAKER OPERATIONS AT BUCK RUN COLLIERY

Dragline conveyor (10), which is 300 ft. long between centers and 9-in. pitch double-strand Wilmot chain with flights 12x54x½ in., removes the coal from the rock house to the breaker. Everything shown above this conveyor relates to the rock house, all below appertaining to the breaker proper. It will be noted that this rock house is not like that at the Marvinne preparator in that the coal is not crushed. The larger lumps of rock are removed from the larger lumps of coal and the rest of the treatment is left to the breaker.



BULL SHAKER IN ROCK HOUSE

Anthracite and rock in about equal proportions come from the monitors to this screen, and the lumps are separated from the fine material, so that eight men may remove the rock from the picking table in the foreground without its being disguised by the presence of finer material. It keeps the men quite busy to handle this large mass of waste material.

from the No. 3 rolls (54) to the floor on which the No. 2 rolls (16) are located. From this point to the top of the building the coal is taken by a second elevator. The two combined really form one continuous conveyor.

Egg coal (20) from the shaker (18) is treated in three Wilmot jigs. This rock, like that of broken size from the Christ jigs, is picked by hand. In this instance, however, the clean coal, being ready for the market, is sent direct to the pocket. Stove coal receives the same

treatment as egg except that in this case four Wilmot jigs are required. Only three Wilmot jigs are needed to treat the chestnut coal, and the rock from these is not hand-picked as is that from the larger sizes.

Tests conducted on the tailings from these jigs revealed the fact that no coal whatever was passing over with the rock. These tests were made on 200-lb. samples and were conducted at times when the breaker foreman and jig runners had no idea that the product of the machines was being sampled. This speaks well indeed for the machines themselves and also for the men who are operating them.

The treatment administered to the pea coal (23) is exactly the same as that accorded the chestnut except that only two Wilmot jigs are employed. All the sizes treated in the manner above described are sent to their respective pockets except when, as will be noted later, storage of certain sizes may be advisable.

Fine coal (24) from shaker (18) or that smaller than chestnut is sent to another shaker (49), where the buckwheat, rice, barley and culm are separated. None of these coals receives further treatment but each is sent to its respective pocket for shipment with the exception of the culm, which, of course, does not go to a pocket but passes to the culm bank.

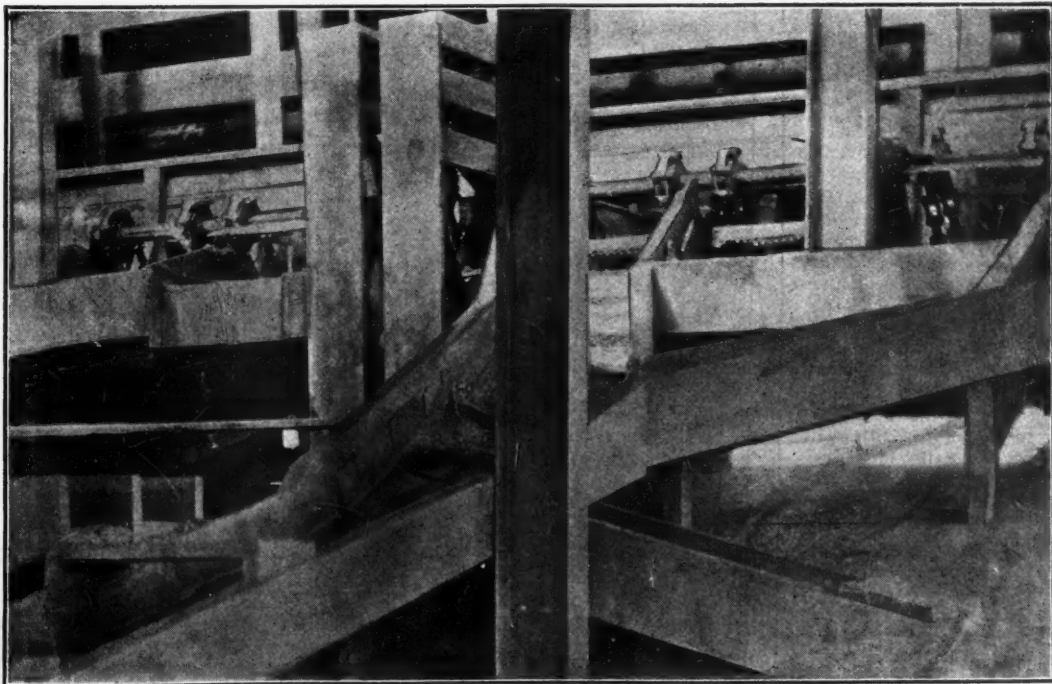
It is interesting to note that the large culm bank at this mine contains approximately 400,000 tons of fine material. At present this coal has no value in the market but it is believed that the time may come when it will be as valuable as the small steam sizes which only a few years ago were considered worthless. As soon as satisfactory methods are developed for burning this material it will be prepared for market on some form of slime table which will remove the high percentage of ash that it now contains.

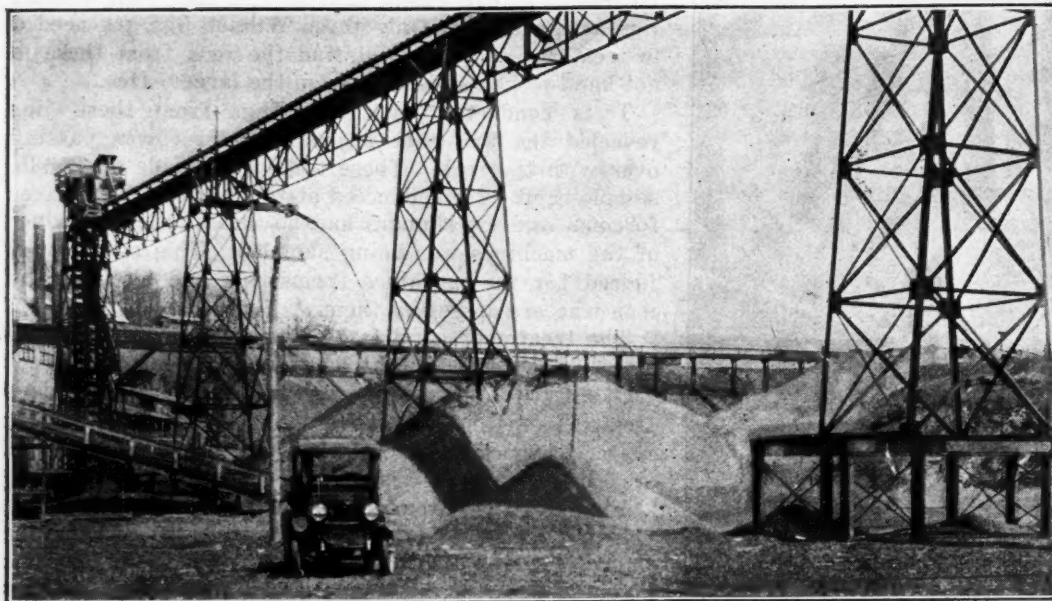
All rock from the jigs is taken to the rock house above the breaker by a scraper line (63). Here it is discharged into the main rock pocket, where it is loaded into a rock car which a hoisting engine hauls to the dump. The capacity of this rock car is 15 tons per load.

Condemned coal as well as that separated by the lip screens below the pockets is taken by the condemned coal conveyor (64) to the elevator (17) previously men-

Jig Floor

All the jigs are placed in a row across the breaker. The two Christ jigs which prepare the broken coal are in the center and the Wilmot jigs on either side. This illustration shows only a few of the Wilmot jigs. The chutes are so arranged that it is possible for the jig runner to watch carefully the product produced and therefore the results obtained are excellent.





Storage Plant

Coal is taken to the top of the 70-ft. steel trestle by an elevator and deposited at any desired point on the piles below through openings in the conveyor trough. The trestle is 320 ft. long between sprocket centers. It has five towers spaced 80 ft. from center to center. The chute shown makes it possible to build larger piles than if the coal were allowed to fall vertically. The chutes can be shifted to any desired angle.

tioned, and by it it is lifted to the top of the breaker for retreatment.

One of the most interesting details of this breaker is the way in which the chutes are arranged so as to prevent as much degradation as possible. The engineers who designed this breaker, both in the original plans and in the changes that have been made from time to time since its erection, have paid particular attention to the lessening of degradation. In passing the coal through the breaker or from one preparation process to another, it becomes necessary to lower it from one floor to the next or through even greater differences of elevation. In consequence the material must often travel long distances and around curves more or less sharp. If these curves are not properly designed, the impact of the coal against the side of the chute is likely to cause breakage, which results in the production of fine material possessing a lessened market value.

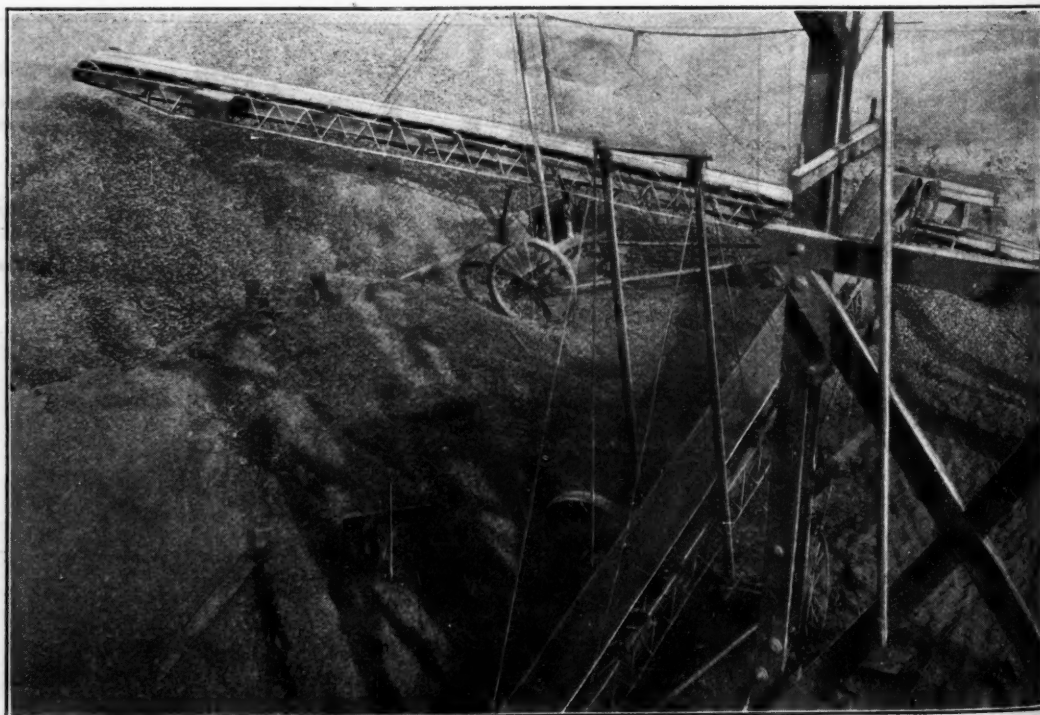
In chutes properly designed it is possible to pass the coal around curves without appreciable degradation.

Curves of this type have been installed in this breaker and it is a pleasure to watch coal making the turns. Almost without exception the material takes these curves without striking the sides of the chute, gliding easily around the bends. Much care was necessary in adjusting these chutes, as it was found that the various sizes required different types of curves. A bend of improper design meant trouble, for the coal would either pile up in the chute and choke it or would pass around so fast that it would strike the sides with sufficient force to cause breakage or attrition.

Approximately 900 tons of coal are prepared in this breaker daily. Considering the large quantity of rock to be removed in the separator house, only a comparatively small force is necessary to handle this tonnage. In the rock house proper twelve men are employed. This includes the foreman. Were it not for the extremely large quantity of rock, this number could be materially reduced. In the breaker eight men and eleven boys are required, including in this number the

Portable Belt Conveyors

Being used to store coal of pea size. The coal is discharged upon one end of the lower of these conveyors and delivered to the one in the rearground, the latter placing the coal on the stockpile. The same conveyors are used for reclaiming the coal from the stockpile and for loading it on railroad cars. Note the way in which the conveyors are suspended from a light tower erected on the truck by which the conveyor is moved from place to place.



foreman of the building. Four men handle the empty railroad cars and load them with coal from the pockets. Thus only thirty-five employees are engaged in the preparation of the coal.

Another interesting detail is the arrangement of the jigs. They are placed all upon one floor and in a straight line extending across the building. The two Christ jigs cleaning the broken coal are placed in the middle and are flanked on either side by the Wilnot jigs. The discharge of these machines is so arranged that the product is visible at all times, permitting the jig runner to see the results produced and therefore that the jigs are operating properly.

At times it is somewhat difficult to dispose of the

at this mine: No. 1 buckwheat, rice, barley and pea. The aggregate storage capacity for all of these sizes amounts to 18,000 tons.

In the main the storage facilities here installed consist of a long steel trestle spanning the entire yard. This trestle is 70 ft. high and 320 ft. long. At the end nearest the breaker is placed a steel tower containing an electrically-driven elevator, which is employed to raise the coal for storage to the top of the trestle. At this point it is discharged into a horizontal dragline conveyor which operates over the full length of the trestle. At various points doors have been provided in the conveyor trough. These may be opened, allowing the coal to pass through and fall to the storage pile below.

Portable Bucket Conveyor

When railroad cars are to be loaded from stockpiles by belt conveyors, this bucket conveyor is used in place of hand labor to put the coal on the belts. As will be noticed, it is easily moved from place to place wherever its services may be needed.



small sizes of domestic coal as well as the steam sizes. Consequently it becomes necessary to provide some method of stocking these grades until the market is ready to absorb them. It probably is cheaper to store such coal at the mines than it would be to stock it in a storage yard, as is the usual practice, because in this latter case it would be necessary to load the coal onto railroad cars, haul it an appreciable distance to the yard and there unload and stock it. It would then be necessary to reload this material and haul it by rail to the point of consumption. By storing the coal at the mines or at the point of delivery it is loaded into railroad cars only once, and as a result the freight charge is reduced to a minimum.

Chief among the difficulties encountered in storing coal at the mines as compared with those at a storage yard is the fact that the mine usually does not possess such facilities for reloading as are provided at the yard. However, various devices have recently been placed on the market capable of handling and loading stored coal economically. Consequently a mine is now in better position to reclaim its own storage coal than it was formerly.

The Buck Run Coal Co. accordingly has built its own storage yard and installed suitable coal-loading and coal-handling equipment. Four sizes of coal are stored

As only one horizontal conveyor is installed on the trestle, only one size of coal may be handled at a time. Consequently as this grade of coal leaves the shaker screen in the breaker, it passes to a pocket, from which it is fed to the foot of the elevator serving the storage trestle. Thus, for example, when it is desired to store rice and No. 1 buckwheat coal, the two sizes are run to their respective pockets. First the buckwheat, we will say, will be run from its pocket to the foot of the elevator until the pocket is empty. When this size has been disposed of, the door in the bottom of the buckwheat pocket is closed and that in the rice pocket is opened. A corresponding change, of course, is made in the opening at the bottom of the horizontal conveyor trough. This permits of the ready storage of both sizes by the one conveyor.

Pea coal is not stocked from this trestle, but is passed from the pea jig to a chute which delivers it outside of the breaker. This size is then fed to a portable belt conveyor built by the Barber-Greene Co., of Aurora, Ill. This machine carries a rubber belt 24 in. wide and 51 ft. long over all and is electrically driven.

This portable conveyor discharges onto another of the same type, the end of which may be raised. Thus a pile of coal may be built up from the discharge of the second conveyor. When the pile becomes too high and

cumbers the discharge, the second machine is moved slightly and another pile formed. The storage thus available is limited only by the fact that the two belt conveyors cannot reach a distance exceeding about 100 ft. from the point where the coal is first received.

Barley size is stocked in a somewhat different manner from either of the other three. In this case the coal is brought from the breaker by a horizontal dragline over a bridge extending across the railroad tracks, and is discharged at points along the line of the conveyor.

Reclaiming stored coal and loading it into railroad cars is comparatively simple. The same outfit employed to stock the coal is utilized in reloading the various sizes. The only difference is that a loader that digs into the stockpile is employed. This machine delivers the coal to one of the portable belt conveyors and this in turn raises it to a sufficient height so that it can be discharged into railroad cars. In case the distance from the stockpile to the car is too great for one belt conveyor, the second is wheeled into place. The loader then discharges to the first conveyor, and this in turn delivers the material to the second conveyor, which dumps it into the railroad car.

Again, if the distance is too great to load the car with the two belt conveyors, then these machines are so arranged as to discharge into a stationary dragline conveyor which delivers to the car. This dragline is permanently in place and is centrally located, but it can be reached from any point of the storage yard by means of the two portable belts.

The loading machine above referred to moves by its own power and practically digs its way into the coal bank. As the conveyors are easily moved from place to place, they may be readily so adjusted as to keep up with the loader, its discharge falling into the hopper placed on the portable conveyor. This system is exceedingly simple and easy to handle. It permits a small mine to stock coal economically and consequently keep in operation during times when orders for certain sizes are not sufficient to take the entire output.

Grass Forty Feet from Entry Is Ignited by Mt. Mulligan Explosion, Queensland

BY JAMES ASHWORTH*

Livingston, Alta.

OPTIMISTS have often expressed the opinion that the day of great disasters from explosions in collieries has passed, yet we are at times startled to read, and only too frequently, that this day has not yet dawned. The last mail from Australia brought details of a most disastrous explosion at the Mount Mulligan colliery, in Queensland, and a few comments thereon may be of value.

The Mount Mulligan coal mine is the property of the Chillagoe Co., and the coal was used at the company's smelters. The Queensland Government is understood to have been giving assistance in the development of the concern and was therefore financially interested. The coal is found under Mount Mulligan, which forms part of the divide between the Hodgkinson and Little Watson rivers, two affluents of the Mitchell, which drains a large portion of the Cape York Peninsula, that northwardly pointing promontory that is so prominent in the north-east corner of Australia.

The entrance to the mines is through a tunnel driven

in from the face of a cliff about 1,200 ft. high. Two coal seams were being operated, the top one a 5-ft. seam mined by the room-and-pillar method, and the other 3 ft. thick, operated by longwall.

Neither of these seams produced any methane or other explosive gas, and the miners used open acetylene lamps. The accounts to hand do not say what sort of safety lamps, if any, were used by the officials.

The mine has been at work for about five and a half years, and last year the output was 23,632 tons. It was ventilated by a fan placed on the top of a shaft and a current of about 80,000 cu.ft. of air was in circulation for the use of the seventy-seven men who were working in the mine at the time of the explosion. The natural temperature was very high, the average in the mine being about 90 deg. The mine was, therefore, both dry and dusty. It is not stated that any means were used to make this dust safe, but as the coal was bituminous and coke ovens were about to be established, it is probable that it was an extremely explosive dust. The strata dipped about one in five. Electricity was the motive power for the fan and other machinery.

The explosion occurred on Sept. 19 about 9:30 a.m., and at the time the manager of the mine was standing near its entrance and was badly injured. The flame of the explosion came out of the tunnel and set fire to grass 40 ft. away. The fan and fan house were destroyed, and the concrete walls of the storehouse were torn to pieces and scattered. All the bodies of the killed were recovered by 11 p.m., Sept. 22. Some of them were so much burned and injured as to be unrecognizable.

DAILY EXAMINATION REQUIRED; NOT CARRIED OUT

As is universally the custom, many more volunteers than could work were present to assist in rescuing, if possible, some live miner from the mine. In regard to this it may be added that two or three men who were in the hospital at the time came out to assist in finding their friends or relatives, and, as one of the Cabinet Ministers telegraphed, "All were heroes." Someone improvised a rescue mask with an absorbent saturated with eucalyptus oil.

There were rules and regulations of an Act of Parliament requiring a daily examination of the mine for firedamp, but none had been discovered. The mine inspector for the province has declared that it was a non-gaseous mine. A fall of roof, causing a sudden emission of explosive gas, has been suggested, but, though possible, it does not seem to fit the conditions as found, for the explorations appear to have been conducted mainly by open acetylene lamps. The information so far to hand makes it clear that the dust was explosive, that detonators and explosives were used in the mine, and also open lamps. Nothing more than an over-powdered or blown-out shot was required to cause such a disaster, and the simple fact that the flame of the explosion extended to the mouth of the adit tunnel and to a point 40 ft. beyond is convincing evidence that coal dust was the explosive agent. To my mind an open acetylene lamp is a distinct danger in a dusty mine with a temperature of 90 deg. The explosive in use in the mine is not stated.

One ameliorative feature is that the relatives of the men killed will receive from £300 to £600 (about \$1,500 to \$3,000) compensation for the loss of those who perished. A special commission has already been appointed by the Queensland Government thoroughly to investigate and find out the cause of this disaster.

*Consulting mining engineer.

Mine at Wolf Run, Ohio, Has Two Double-Decked Cages And Two Separate Steam-Driven Fans for Alternate Use

Loaded Cars Carried on Upper Deck and Empties on Lower—Separate Circuits for Cutting Machines and Locomotives—Garages for Men Coming from Distance—Miners Establish Summer Chautauqua

THE Elizabeth mine at Wolf Run, Jefferson County, Ohio, is one of twenty-three developments owned and operated by the Warner Collieries Co. of Cleveland. Both mining property and the adjacent town are reached by a spur from the Alliance Division of the New York Central lines.

The mine is a shaft opening 280 ft. deep, tapping the Lower Freeport bed. This operation is developed on the triple- and double-entry system. The middle face entries on the north and south sides are used for main-haulage roads and intake air courses. Doors have been dispensed with as far as practicable and overcasts are used wherever possible.

Ventilation is furnished by either of two fans. Fan No. 1 is a 4 x 10-ft. Capell machine direct-connected to a 14 x 14-in. Chuse steam engine making 140 r.p.m. and developing about 100,000 cu.ft. of air per minute. Fan No. 2 is a 4 x 6-ft. Jeffrey ventilator, also producing 100,000 cu.ft. of air at a speed of 235 r.p.m. It is belt-driven by a 15 x 15-in. Erie engine making 132 r.p.m. The two units are under one roof, and if the one should happen not to be in perfect mechanical condition, the other will insure uninterrupted ventilation.

The stoppings in the mine are built of brick and concrete. A journeyman mason and his helper are regularly employed to build such stoppings and to make repairs. Careful attention to ventilation in this mine has reduced the gas hazard to a minimum, and the results obtained have proved more than commensurate with the cost involved.

About 175 of the loaders and 85 daymen are employed. A temporary shortage of territory has reduced the average daily output from 1,500 to 1,100 tons. Painted in large letters in the general office of the mine is the legend: "Record Tonnage, Jan. 26, 1920—1611 Tons."

Two main electric haulage locomotives and eight

gathering motors are employed to move the pit cars to the shaft bottom. No animals are used either in gathering or haulage. The cars are caged by two mechanical car hauls delivering to two double-decked cages. The loaded car is caged on the upper deck, is hoisted, runs off the cage, dumps and then returns empty to the bottom deck. These operations both within the mine and on the tippie are entirely automatic and take place by gravity.

Coal is hoisted by a 300-hp. 250-volt direct-current motor, the operator being stationed in the tippie. Geared to the motor are two conical steel drums tapering from 6 to 5 ft. in diameter. A powerful brake gives the operator absolute control of the hoisting operation at all times. Power for this unit is supplied by a 150-kw. 250-volt direct-current generator driven by a 17 x 22-in. Ridgway engine.

A cage equipped in the ordinary way occupies one compartment of the airshaft and is used for lowering and raising men, handling supplies and the like. It is operated by a pair of 12 x 16-in. second-motion Vulcan hoisting engines. A regular hoist driver is constantly in attendance during working hours and the main hoisting operations are thus not interrupted for the movement of men or material.

Steam is generated at a pressure of 125-lb. gage by five 150-hp. hand-fired boilers, nut and slack being used for fuel. The feed water is heated to about 210 deg. F. by an 800-hp. Cochrane open heater. It is fed to the boilers either by a 12 x 6 x 18-in. Yough simplex pump or by a 10 x 6 x 12-in. Fairbanks, Morse & Co. duplex pump. A 5 x 3½ x 8-in. simplex pump supplies the main water tanks. These pumps are so connected that any one of them can be used either for boiler feeding, tank supply or fire service, as expediency or emergency may require.

The boilers are connected by return bends to a 12-in. header line. Each is provided with an outside screw

Elizabeth Mine

In the left foreground is the bathhouse and to the right in the background are the power house and tippie. The mine plant is surrounded by high hills. The railroad is a spur from the Alliance Division of the New York Central lines



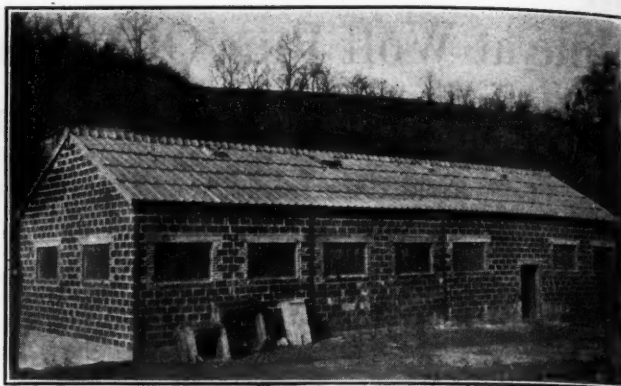
and yoke type of valve and an automatic non-return stop valve. All steam lines are well insulated and are of proper size for the purpose intended. Steam separators and traps are installed wherever needed. An exhaust steam heating system is employed in all buildings.

Electrical energy for the mine is supplied by three 18 x 18-in. Ridgway engines direct connected to three 150-kw. direct-current generators operating in parallel. Voltage is boosted in the distant parts of the mine by two 27-kw. 300-volt direct-current generators driven by an 80 hp. motor. Separate circuits are provided for the electric locomotives and the cutting machines. The entire distribution of current in and about the mine is controlled from a seven-panel slate switch-board.

The blacksmith, carpenter, car-repair, machine and electrical shops as well as the stock rooms, are all housed under one roof. Labor-saving machinery has been installed as far as possible, and emergency repair work of almost all kinds is handled with ease and dispatch. An oxyacetylene outfit is used for many kinds of welding and cutting, and in the electrical shop an oven for the baking of armatures and similar operations has been installed.

In the stock room supplies of every description are stored and an attendant gives his entire time to their keeping and issuance. An accurate record is kept of all tools taken out by workmen as well as another covering the supplies requisitioned and the purpose for which they are used.

The Ohio "washhouse law" took effect April 30, 1920, but this statute was not directly responsible for the building of a modern 30 x 80-ft. fireproof washroom adjacent to the man shaft at this mine. Erection of this building was in direct keeping with the policy of the company. The washroom contains the usual showers, basins, hot and cold water and the like. The dressing room is equipped with the customary galvanized-iron type of hangers, so spaced that the clothes of one man do not come in contact with those of another. The hangers are hung on galvanized chains that can be locked individually to retaining hooks. Accommodations are provided for 300 men.



WASHHOUSE FOR THREE HUNDRED MEN

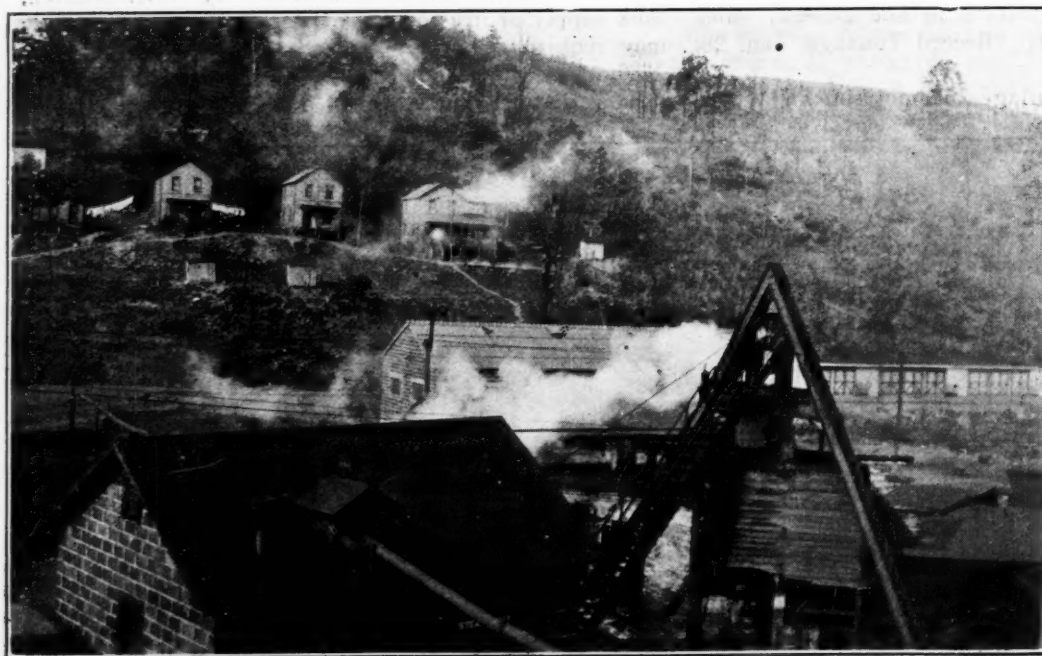
Building measures 30 x 80 ft. and is wholly fireproof. It is fitted with showers, basins, hot and cold water. Hangers with galvanized chains capable of being locked are used for the suspension of clothes from the roof. Showers are to right of the door.

Air is made to circulate past the clothes by means of ventilators placed in the tile roof. This method has proven entirely satisfactory. The walls of the building are of brick and the floors of concrete with a gentle slope from all directions toward a drain in the center of the room. A water hose is used daily, and the building is kept in a thoroughly sanitary condition. Nine out of ten men employed at this mine make use of this accommodation.

Five triple garages have been built for the use of those men who drive their automobiles to and from work. They have proved themselves an attractive addition to the property. Plans are under way to provide them with steam heat in the near future. A small rental is charged for the use of these buildings.

Too often a mining town is troubled by dirt roads and mud, which make it well-nigh inaccessible, especially in rainy weather or during the winter months. To avoid this condition well-kept cinder roads have been built in and around the property. The streets of the mining town itself also are constructed of this material.

Formerly automobiles and heavy teams could not in bad weather use the public road leading from the town to the main piked highway two miles distant

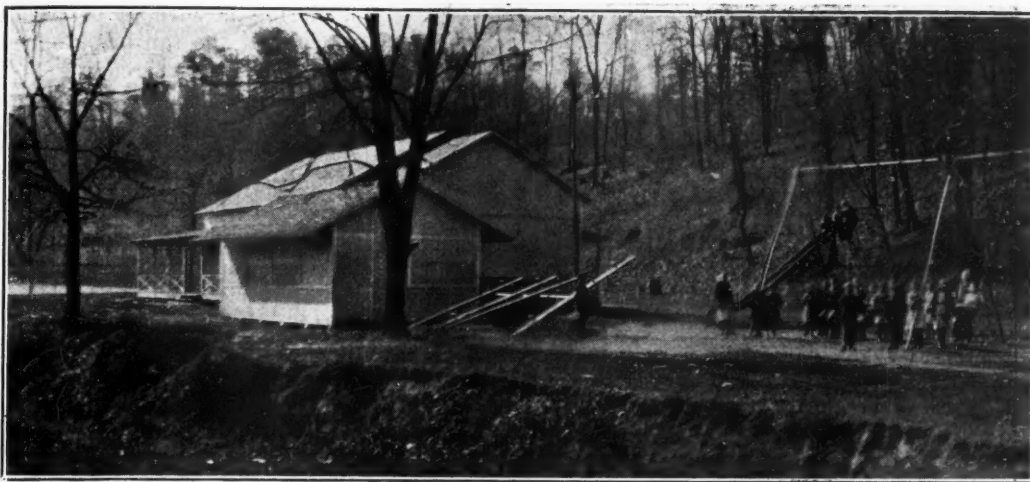


Man Hoist

A somewhat simple and unusual form of headframe is set up over one compartment of the air-shaft. The cage is handled by a pair of 12 x 16-in. second-motion Vulcan hoisting engines and is used for hoisting and lowering both men and materials. By the use of this hoist the raising of coal and lowering of empties is not delayed by the passage of men and machinery.

Playground and Picnic Grounds

Every modern mining town has its well-equipped playground. This one was built by the company, but it is extensively used by the children of the public school that has been built adjacent to the playground.



without much trouble. The company agreed to furnish the teams, rock and cinders necessary to improve this road if the miners and farmers would man the sledges and shovels. The road can now be used the year round by both trucks and pedestrians, and the company employs a teamster whose chief work consists in hauling cinders from the boiler house to keep the roads and streets in repair.

At the end of the town a plot of ground containing several acres has been set aside on which is located a baseball diamond, football field and the like. All of these fields are kept in excellent condition. A large frame building of excellent design is equipped for basketball and other indoor athletics. The floor can be used for dancing, and portable seats permit of this building being utilized as an auditorium. A well-equipped stage is placed at one end so that this hall can be used as a theatre. Another building where refreshments may be served is conveniently located.

The company was instrumental in organizing the Wolf Run Amusement Association, which is strictly an organization of the miners. When the tickets were allotted for the summer Chautauqua, Andrew Bobby, mine foreman, sold 211 of them in two days. Through the voluntary co-operation of the company with the men, varied amusements have proved highly satisfactory from a financial standpoint, and the recreation thus

provided for both men and their families has afforded much pleasure.

The company furnishes, free of cost, all uniforms and equipment for baseball, basketball and football. A playground for the children has been equipped with the latest type of amusement apparatus such as teeters, swings, slides and the like. This same playground is also used by the children of a township school which has been built adjoining the property.

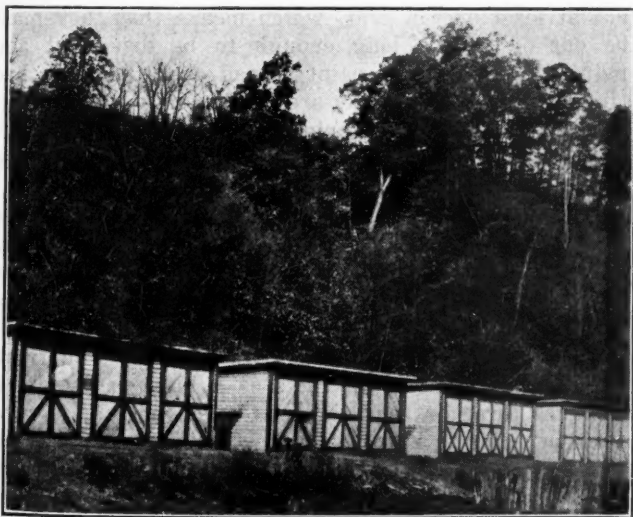
Block Signals Control Trips at Indianola; Flickering Lamp Shows When Fan Runs

BY ALPHONSE F. BROSKY*
Pittsburgh, Pa.

ALTHOUGH at the Indianola mine only two large locomotives are used on the main haulageways, it has been found advantageous to install an electric light block-signal system similar to that used on street railroads. This simple scheme does away with many delays that might otherwise occur. Where many haulage motors are used this device would be a still greater help.

Two colored lights are used in this system, a red, or stop, signal, and a green, or right-of-way, lamp. Suppose locomotive A is in the northeast workings and is about to start for the main bottom, where locomotive B, already attached to a trip of empties, is advancing toward A's position. In such a case whichever of the two machines reaches the block first will have the right of way. As neither of the two is in the block, the signal lamps show green at both of its ends, namely at the knuckle and the north extremity of the main haulageway. Should locomotive A reach the block first, the motorman throws an overhead switch, changing the lights from green to red, indicating that his machine is in the block. Thus locomotive B, on reaching the knuckle, is stopped by the red lamp. Locomotive A, on passing the knuckle, throws the overhead switch, and the block is open to locomotive B on the appearance of the green light. The same signals apply also to important turnouts.

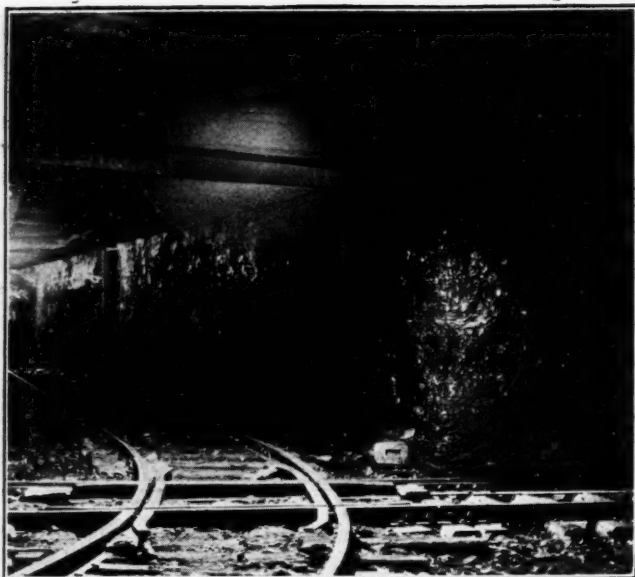
Ordinarily only the east track of the two on the load side in the main bottom is used for storage. Should it so happen that one locomotive enters the block immediately after the other has left it, both advancing toward the main bottom with loads, the second machine, on coming to the knuckle, stops as soon as the motorman



THREE-STALL GARAGES FOR MINERS AND OTHERS

A nearer view of the garages that are to be seen also in the rear of the illustration of the man hoist. Many men drive in to their work in automobiles and need this accommodation. The garages will ultimately be furnished with steam heat.

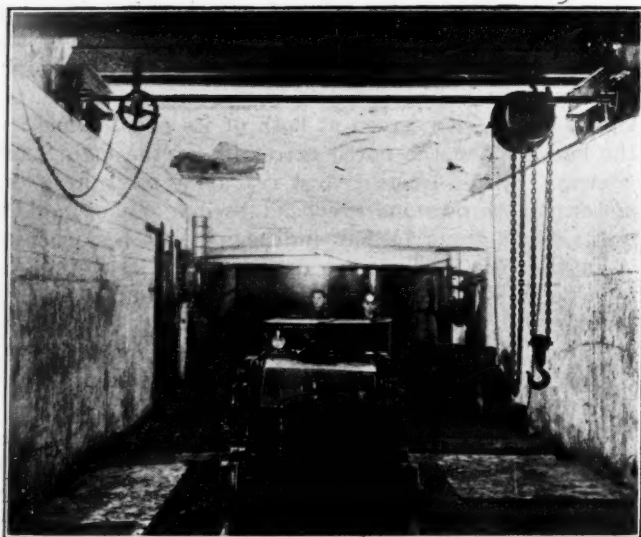
*Bituminous Editor, *Coal Age*.



ROAD FROM LITTLE TO BIG BOTTOM, INDIANOLA MINE
The 60-lb. rail crossover is a good example of the heavy-rail construction underground which makes it possible to operate with minimum derailments. Note the lighting in the roadway.

observes that the first locomotive has just pulled onto the east storage track. When a trip arrives on this track, the cager throws on a yellow light, which is the signal for the second locomotive to pull in on the west track of the main bottom. The trip schedule is so arranged that this expedient is not frequently necessary.

Another safety device is provided for the purpose of insuring a continuous ventilating current. In the fan house a make-and-break circuit operated by means of an attachment to the shaft of the electrically-driven fan causes electric lamps to go on and off as long as the fan is running. The fan house, check room and power house are each provided with one of these indicator lamps, all being on the same circuit. Should the fan stop, the contact will be in either a make or break position, and the light will remain on or off. For this reason the fan house may be left locked and the attendant may proceed to any point where his services may be needed. As there always is someone in the check room, and usually in the power house, the fact that the light has ceased



UNDERGROUND LOCOMOTIVE-REPAIR SHOP

Large, well lighted and ventilated and equipped with a heavy traveling crane, any repairs needed by the locomotives can be promptly made.

flickering is sure to be noticed and warning thus be given that the fan has stopped.

If the vacuum reading is lowered a predetermined amount, a special float attachment—a Bacharach recording water gage—closes an electric circuit in which is a siren whistle. Such a rise of the water column would actuate the float attachment, thus closing the electric circuit and causing the siren to sound an alarm. Within the fan house is an auxiliary steam-driven fan, which is started upon failure of the one electrically actuated. The electric machine is driven by a 125-hp. Westinghouse induction motor, the speed of which may be regulated within limits. The flickering indicator lamps may be used as revolution counters in the regulation of the speed of the fan, which normally is kept running at 128 r.p.m.

Tanks, if of Durable Wood, Last Long with Low Cost for Upkeep; How Erected

WOOD tanks when made from good material will outlast tanks of steel. Some of the tanks, made from heavy wrought iron years ago, lasted many years, but the steel tanks of the present day are not to be confused with these. There are many authentic records which show that tanks made from woods suited to the purpose will last thirty, forty and even fifty years or more.

Red gulf cypress, declares the Hauser-Stander Tank Co., of Cincinnati, is less subject to decay than other woods, which quality probably is due to the presence of an essential oil termed "cypressene," found only in genuine red gulf cypress. Tanks made of this wood are giving satisfactory service after over thirty years of use. Some "all heart" cypress tanks erected in 1790 at Newburyport, Mass., were still being used in 1917, after being in continuous service for the intervening period. The closing of the plant prevented a longer test, though in November, 1920, they were apparently as good as ever.

WOOD TANKS NEED NEVER BE OUT OF SERVICE

This was because wood tanks are not corrodable, whereas, where the water abounds in chemicals that induce corrosion, steel tanks readily corrode. To defer this action steel tanks must be painted both inside and out at least once a year, which means that they must be out of service long enough to be dried out and painted and until the paint spread over them has had time to dry. Wood tanks are painted only occasionally, and then on the outside only and principally for appearance. As the inside never is painted the tank need never be out of service.

A wood tank, if attention is necessary, can be repaired by any carpenter or mechanic, whereas if a leak occurs in a steel tank, an expert boiler maker is needed to make the repair. A wood tank, furnished with a flat and a conical cover, unlike a steel tank, is not a ready conductor of heat and makes its own effective frost-proofing. The steel tank acts as a huge radiator and requires three or four times as much heat as a wood tank in order to keep the water from freezing. Wood protects from heat as well as from the cold and, where used for drinking-water tanks, the water is much cooler in summer than that stored in steel. The painting, repairs and heat required for steel tanks are large items in maintenance cost as compared with wood.

If, after years of service a wood tank should begin to

fail, it can easily be replaced by a new tank without disturbing the steel structure on which it rests. A steel tank, on the other hand, is an integral part of the steel tower, and when the tank fails, the entire structure as a rule must be replaced. Wood tanks and the structures by which they are supported, being separate, can readily be taken down and re-erected at a new location without harm and with little trouble. In outward appearance as in durability wood tanks, when properly erected and maintained, are equal, if not superior, to steel tanks. When made from the best materials and with good workmanship they are less expensive than steel tanks and offer more advantages.

They should be erected on a level foundation sufficiently strong to carry the load without deflection between supports, which should not be more than 18 in. apart. The staves must not carry any of the load and to assure that this is so there should be a clear space of at least one inch under the staves and preferably more. When on the ground, the foundation must extend below the frost line.

The head, or chime, joists should be 3 or 4 in. above the floor and 2 or 3 in. shorter in length than the inside diameter of the tank. The bottom pieces are laid cross-wise on the joists. Dowel pins are put in and the bottom pieces driven closely together, a block being used to prevent bruising or splintering the timber.

ALLOW FOR TIGHTENING WHEN HOOP IS ADJUSTED

By tacking a board across the upper side of the bottom the position of the planks can be maintained till all the staves are set up and the bottom hoop placed. Drive the first stave so as to cover the joint between two bottom planks. Then drive the staves in place, keeping them perpendicular and square at the bottom. Drive them so that, while tight on the inside, an outside opening $\frac{1}{8}$ in. to $\frac{1}{4}$ in. wide will be left at the very bottom to allow for tightening when the hoop is adjusted.

When the staves are numbered they should be set as numbered. When their order is not so specified, stagger the stave joints with the bottom joints at least one inch. An extra stave always is supplied to take care of any differences in driving. No vertical stave joint should be allowed to come where two bottom planks are joined. When ready for the last stave take the exact measurement and plane the stave to size before setting. A light rope round the outside of the staves near the top fastened to the staves by common fence staples will facilitate erection.

When the staves are all placed, commence from the bottom, using the largest hoop and placing it so that its center will be directly opposite the top edge of the bottom when in position. Strike on the hoop with a heavy hammer every few inches, working toward the lugs. In this way the tension around the tank will be equalized.

On tanks 10 ft. high and 10 ft. in diameter and upward place the next hoop about 6 in. higher and gradually increase the space between the hoops toward the top, placing the top hoop about 2 or 3 in. from the top of the stave. Never place the lugs one above the other in a vertical line but distribute them around the tank to prevent divergence from the circular shape. Never slip the hoops over the top of the tank till the bottom hoops are tightened.

The material out of which the tanks are made should never be exposed to the weather before being used.

The tank should be filled as soon as erected. Should a leak manifest itself when filling do not fill the tank above the leak; any water admitted above that point will increase the pressure and prevent the natural expansion required to close the opening. When the completed tank has been exposed for some time before erection, fill gradually and the tank will expand in such a way that it will avoid flooding the foundation. The tank should not be left over night without a goodly number of hoops in place. With that end in view start stave driving early in the morning. Avoid an extremely windy day for tank erection and commence setting the staves on the windward side, so that a convex, and not a concave, surface will face the wind, thus lessening resistance. Never wedge or calk the staves; otherwise you will spring the joints at some other place or open wider the one that has been calked.

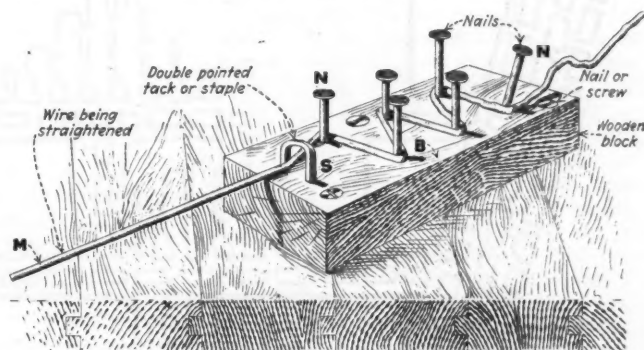
Multiplying the mean diameter in inches by itself and this by 34 and this again by the depth, in inches, a number will be given which by striking off four figures to the right will give the contents in gallons. Tanks are made to hold from 5,000 to 100,000 gallons. They weigh from 5,570 to 40,409 lb.

Simple Way of Straightening Small Wire*

BY H. A. TRUMBULL
St. Louis, Mo.

SMALL wire may be easily straightened by employing the means and methods here described. This arrangement is not effective, however, for wire of large diameter. The apparatus consists merely of a wooden block (B) in which are driven six or eight nails (N) staggered as shown. A double-pointed tack or staple (S) at one end of the block near its median line completes the arrangement.

After the wire (M) has been threaded between the nails and sides of the staple it is drawn out. The



STRAIGHTENING BLOCK FOR SMALL WIRE

Merely pulling the crooked wire back and forth between the pegs, or in this case nails, is sufficient to remove all kinks. If the wire is insulated the diameter of the pegs should be relatively much larger than shown.

function of the staple is to prevent the wire from slipping up along the nails. The number of nails or pegs to be employed will depend upon the size and condition of the wire. If it contains a large number of small kinks more nails and a longer block than is here shown will be necessary.

WELL, WE GUESS every possible means of lightening the tax burden has received the careful consideration of our statesmen now except not spending so much money.—*Ohio State Journal*.

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Problems of Operating Men

Edited by
James T. Beard



Concentration in American vs. British Mining

Maintaining a Continuous Working Face Essential to Concentration of Work—American System, Room-and-Pillar vs. British Longwall Working—Relative Cost of Production

WRITING on the subject, "Concentration Essential to Better Mining," *Coal Age*, Oct. 13, p. 585, I. C. Parfitt rightly claims that the development of the highest productive efficiency, in coal mining, simply means "the operation of a continuous working face, as far as that is practicable."

In continuing, however, the writer compares the room-and-pillar system, commonly used in the mining of coal in the United States, with the longwall method so universally employed in England and on the Continent. He appears to claim that the English system lends itself so naturally to the most effective concentration of work as to reduce the cost of operation to a minimum.

In refutation of the conclusion reached in the last statement, I would like to quote from the *World's Work*.

today, American coal can be mined in West Virginia, transported two hundred miles to the seaboard and landed in England, for less than it cost to mine a ton of coal in a British colliery, under present conditions. The statement becomes more startling when I add that this can be done under an American wage considerably in excess of England's present wage scale.

Another point to which I wish to call attention is the statement Mr. Parfitt makes regarding the relative advantages of the advancing and retreating systems of working coal. Speaking of the retreating method, he ascribes the reason for its affording greater concentration to the fact that "any desired number of rooms can be turned at once."

While it is true that there is an advantage in working rooms and pillars on the retreating system, the gain does not come from being able to turn a

shown in the accompanying figure, which may be recognized as a more advanced stage of the workings described in my previous letter that appeared in the issue, Aug. 18, p. 260. The plan is one where the coal is taken out on the advance system of working and in which a marked degree of concentration is made possible by extending the rob line clear across the rooms and headings, as mentioned in my letter at that time.

By this arrangement, the old trouble of leaving a line of entry stumps, with a long haul and a small output, is eliminated. The point I want to make clear is that, by a proper arrangement of the advancing system of mining, there is the same advantage of concentration of work as in the retreating system.

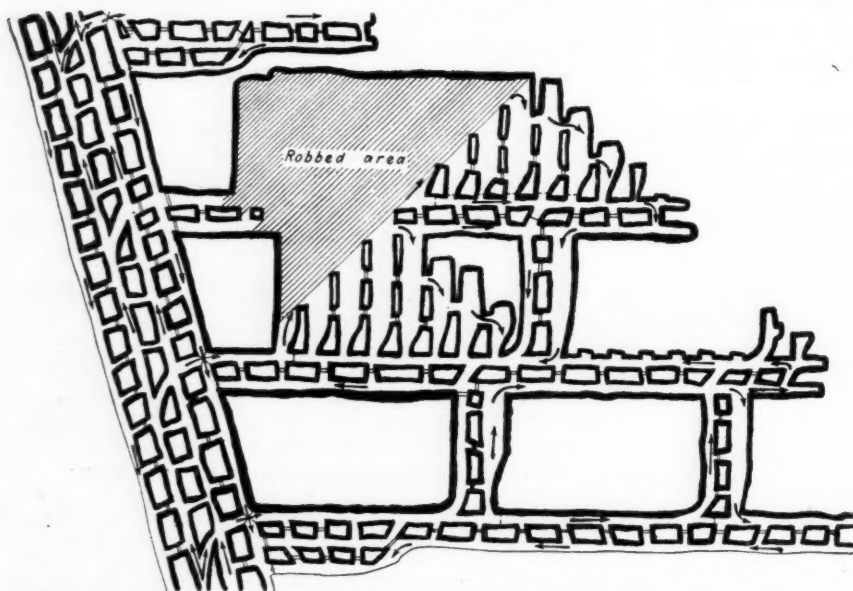
ENGLISH SYSTEM PROBABLY BEST SUITED TO CONDITIONS THERE

It is not my intention, however, to convey the idea that the statements to which I have referred are wrong. I freely admit that the system employed in England, where the mines are deep and the seams thin, is the best that could be installed under those conditions.

On the other hand, in this country where quick returns and large outputs are in demand and where we have comparatively thick seams with thin covers, it is not wise to hold too closely to one method of mining. In many cases, the quick advance of the coal face may spell success in a mine that could not otherwise be operated.

Harlan, Ky.

FRED ROSS,
Mining Engineer.



EVEN WITH THE ADVANCING SYSTEM, CONCENTRATION MAY BE EFFECTED BY EXTENDING THE ROB LINE ACROSS ROOMS AND HEADINGS

September issue, page 513, which reads as follows:

Recently, in one month, in Wales, where mining is done mostly by hand, the average output, per miner, for the entire month, was but fifteen tons or slightly more than one-half ton for each working day. In an average American mine equipped with modern machinery, it is not unusual for a single miner to turn out fifteen tons, in a single working day. As the situation stands,

large number of rooms at once. In my opinion, it will generally be found a better plan to start one room at a time and regulate the work so that the rob line will reach that room about the time the place is driven up. This will make it possible to use the same track when drawing back the room pillars as when driving the rooms.

Allow me here to present the plan

Inspector Forbids Solid Shooting

Coal shoots hard—Miner uses dynamite and shoots coal off the solid—Inspector of mines forbids this practice—Mine manager (foreman) sides with inspector against miner.

MY interest in the question of solid shooting is not as great as that of many. Still I have read what has been said on this subject and believe that there are conditions that favor the practice and make it safe if reasonable care is used to prevent accident due to a blownout shot or the excessive use of powder.

In my time I have driven narrow places and watched others doing the same where the coal was very hard to mine. Under these conditions, we have always decided that the best results could be obtained, in entry driving, by locating three shots in favorable positions in the face of the heading and

charging the holes with powder or dynamite, as the case might require.

Where there was no danger of causing an explosion of gas or dust we considered that this practice was safe and it required far less labor to break down the coal. The work of undercutting coal that is very hard is, as I well know, the most difficult work a miner must do. I have dug ditches and performed other kinds of work, but think that hammering all day at a hard mining is hardest of all and progress is slow.

In this connection, I thought the following conversation overheard between a mine inspector and a fellow working an adjoining place to mine would be of interest. In that case, the coal was hard and we were following the practice I have just described, shooting the coal off the solid and not infrequently charging a hole with dynamite.

MINE INSPECTOR INVESTIGATES

One morning our work was interrupted by a rather sudden and unexpected visit of the mine inspector, who coming along the gangway, hallooed to my friend. The conversation that ensued ran about as follows:

Inspector. Hello there.

Miner. Hello yourself down there.

Inspector. How is the air in your place?

Miner. You have it down there, examine it for yourself.

Inspector. It is not so bad here.

Miner. I would not call it good. Who are you any way; are you a boss or a miner?

Inspector. I am neither.

Miner. Come up here until I see who you are.

Inspector (slowly and laboriously climbing the pitch). I am the mine inspector.

Miner. Oh! I did not know to whom I was speaking.

Inspector. Do you shoot your coal off the solid, here?

Miner. Yes, we do.

Inspector. What explosives are you using?

Miner. Sometimes dynamite, but mostly stumping powder. Today, I have stumping powder.

Inspector. Who looks after this section?

Miner. The manager (mine foreman).

Inspector. Who is the manager; what is his name?

Miner. Jack Smith.

Inspector. Get him up here.

The manager arrived.

Manager. Good morning, Inspector. Did you want to see me?

Inspector. Come here, Jack. Why is there not better air in this place? No air could get through that hole yonder; it is not large enough.

Manager. The place where the air did get through was blocked a day or two since, and we have not been able to open it again.

Inspector. Have that hole made larger and get about it as quick as you can.

Manager. All right, sir; I will.

Inspector. Jack, another thing; do you not think this coal could be dug without shooting it off the solid?

Manager. Why, yes. I have a long stretch of places where the coal is being mined before shooting.

Miner. This section cannot be mined without the coal is shot off the solid.

Inspector. I worked in coal that, for a time, we shot off the solid. Then, we stopped the solid shooting and mined it with a pick.

Miner. Times are different now from what they were then. Unless a man takes every advantage in the use of dynamite for hard coal; or the place is mined with machines; or the coal is soft so that he can mine it with a pick, a fellow cannot make a living wage.

Inspector. I will see that you use no more dynamite in this place and mine the coal properly before shooting.

Miner. You cannot stop us shooting the coal off the solid, or using an occasional stick of dynamite. There are thousands of tons of coal shot off the solid, today, both in this country and in the States.

Inspector. Oh! You are not in the States, here. What they do there is nothing to us.

Miner. That's all right, Mr. Inspector; but the Coal Mines Regulation Act of Canada that I have makes no mention of the word dynamite; nor is there anything about shooting the coal off the solid, except where a place contains sufficient gas to be found in a safety lamp.

Manager. I am going to stop the solid shooting, here, anyway. It has been on my mind to do it, for some time back.

Inspector (to the miner). I will see that (you use no more dynamite in shooting coal.

Miner. All right, sir; act on your own judgment in that matter.

Inspector. Good-bye.

Miner. Good day, sir.

I have given this conversation to the best of my recollection; because it reveals a phase of mining, common in certain localities, where the task of the miner is a difficult one. The conditions set forth should receive the most careful consideration, but always with due regard to safety and efficiency.

—, Canada.

MAC.

Should Miners Cut Their Own Posts?

Loss of time to the miner and waste of timber urged as arguments against miners cutting their own timber—Posts cut to length when timber is felled the better plan.

THERE are a number of good reasons why miners should not be compelled to cut their own posts the desired length, after these have been delivered in their places. I claim this in spite of all that has been said by writers, in *Coal Age*, in reference to miners keeping sharp axes and saws in their places ready for such use. Sharp tools were also strongly urged, in the

letter signed "Safety First," in the issue of Nov. 17, p. 806.

In the first place, let me say that posts should be cut to the required length, 4, 4½, 5, 5½ or 6 ft., as required, when the timber is felled in the forest. If this plan is adopted there will be a great saving in material, to say nothing of the saving of time required to cut the posts to the proper length after they have been received at the mine.

If the purchasing agent, superintendent or mine foreman, as the case may be, is a practical man, he will give the timber cutters orders to cut the posts at such lengths as he desires. As these posts are delivered, they should be stacked according to size, so that the miners' orders for posts of a given length can be quickly and promptly filled.

This plan has been thoroughly tried out, in this coal field, and found to work successfully. For example, a quantity of 4-ft. timbers are cut and stacked, in place, in the timber yard. Next to these comes a stack of 4½-ft. timbers and, next to them are 5-ft. timbers. Each stack is marked to indicate the length of the posts.

Now, if Jack Jones comes out hunting for a 4½-ft. post, or sends his order to have posts of that length delivered at his place, there is no difficulty in finding what is wanted, without delay. This is quite different from a case where the miner must cut off 6, 7 or 8 in. from the end of a stick, before it can be set in place.

WASTE OF TIMBER DUE TO INACCURACY

The loss of time when a miner is compelled to cut his own timber is considerable and means much to him. That is not all; it will generally be found to mean much to the company also, by reason of the waste of timber that is sure to follow. Few miners are able to make exact measurements, and many posts are either too long or too short when the cutting is left to them.

To illustrate, I will cite an instance which I observed happen a short time since. The roof, in a miner's place, was bad and he looked around for a post. The only stick he could find was about 6 or 8 in. too long, as he thought. He first cut off some four or five inches, fearing to get the post too short. Finding it still much too long, he again cut off about the same amount.

Naturally, the post was now too short and the miner, in disgust, threw it aside into the gob and went in search of another stick, with what result I do not know. The chances are that the post thrown into the gob was lost, as the miner would be anxious to hide his own mistake in cutting the timber too short.

Occurrences of this kind are not uncommon in the mine. At the best, a coal miner's task is not an easy one, as I know from an experience of many years at the face. The difficulties he has to encounter are manifold and his work should be lightened as far as it is practicable to do this.

In reference to cap-pieces, before closing, let me suggest one thing that

should be of interest to all miners. When setting a post the cap should be driven toward the coal face. It will then hold the post more firmly and prevent its being discharged when a blast is fired in the coal.

—, Tenn. MINE FOREMAN.

Safe Rule in Timbering

Trust no roof though apparently sound—Taking a gambler's chance is never safe practice in timbering—Systematic posting the only safe rule—Low accident rate insured.

WRITING on the subject, "Cut Mine Timbers to Measure," *Coal Age*, Sept. 22, p. 460, J. H. Taylor has incidentally introduced a most interesting and important feature in respect to the safe mining of coal.

What he has said in reference to timbers being cut to right length before being sent into the mine, as a means of reducing the accident list is true and I propose, now, to deal with another phase of the subject that, to my mind, is of equal importance in the prevention of accidents at the working face.

It is generally agreed that accidents at the coal face are due to the failure of the miner to set any posts in his place; or the number he sets is insufficient for the support of the roof; or he has used poor judgment in standing the timber, with the result that the fall rides over the posts, which have not been set plumb, or were not cut square at the end.

MINER SHOULD TRUST NO ROOF, EVEN IF IT APPEAR SOUND

When a miner makes up his mind to trust no roof, however sound it may appear, he is playing safe. An analysis of the large number of accidents occurring in mines daily would serve to show that the "apparently sound" roof is the roof that generally falls with fatal results. The reason is that had the miner thought it would fall, he would not have trusted himself to work under it, except for the purpose of making it secure.

Although the fact is generally recognized that the only safe rule, in mining, is to keep a certain number of posts standing in a place that is being worked, there are many mining men who believe themselves capable of saying whether the setting of these posts is necessary, or whether the work can be postponed for a time, while they are loading out this coal and cleaning up.

It is this class of men that are continually taking the gambler's chance, instead of following the safe and sound way and making themselves secure against accidents. They are prone to think that any uniform or systematic kind of timbering is an unnecessary expense. However, I am glad to say that this manner of thinking is slowly but surely passing and men are becoming converted to the right way, which is always the safe way.

The actual experience of a leading

coal operator, in respect to timbering the working places in a mine, is worthy of our thoughtful consideration. Without mentioning the name of the mine or its location, I may say the roof condition in that mine varied from good to medium. The management, however, had learned a lesson several years ago and established the rule that no man, however experienced he might be, could say "This roof is safe and needs no timber."

In that company, there was one fixed rule that, like the laws of the Medes and Persians, was never changed. The rule was to set a certain number of posts for each cut loaded at the face, and as many more as the miner might wish or think necessary. In order to carry out this rule with fairness to the miner, it was necessary to keep his place well supplied with timber cut to the right length and squared at both ends.

The height of the coal varied in different parts of the mine; and the timber yards were systematically arranged to keep the several sizes or

lengths of timber separate, each length being piled in a section by itself where it could be readily found when needed. All cap-pieces were cut 18 in. long and made in wedge shape, which greatly assisted the setting of the posts in the mine.

It will cause no surprise to state that, although this company operated five mines, they have not had a single fatality or specially serious accident from a fall of roof in many years. This is the result of adopting a safe rule in timbering the working places and going the limit to carry it out. The plan adopted made it practically impossible for a miner to say, "I had no posts in my place to set and was obliged to take some chances until the posts came."

The orders were: "Never wait for a miner to order timber for his place." Instead, the assistant boss was held responsible, first, last and always, for keeping an ample supply of timber in every man's place, together with the necessary cap-pieces.

Pikeville, Ky. GEORGE EDWARDS.

Inquiries Of General Interest

Purpose of Revised Certificate Law

Enactment of Miner's Compensation Law in Pennsylvania, Made Operators Liable for Injuries to Workmen, Without Giving Them Free Choice of Men to Put in Charge in the Mines

REGARDING the extended discussion, in *Coal Age*, relating to the employment of uncertified men in the positions of mine foreman, assistant foreman and fireboss, as provided in the revised Pennsylvania law, it would be interesting to know the purpose of such provision.

In other words, what arguments were used to induce legislators to change the old law and make it possible for coal operators to employ men to act in these official capacities when they had not been certified as competent to fill such positions.

Reading the excellent letter of John Wall, Sr., *Coal Age*, Nov. 17, p. 807, it appears that the old law requiring certification of underground officials had been in force for thirty years (1885-1915). The results accomplished during that time leave little room for doubt in regard to the value of the old law.

With these facts before us, it seems there must have been some outstanding reason that caused the State Assembly to make this change, which it would seem, from the present discussion, is universally condemned by the rank and file of underground workers. It is to be hoped that *Coal Age* can throw some light on this matter.

Gans, Pa.

R. W. LIGHTBURN.

As has been explained in *Coal Age*, at different times, previously, it was the enactment of the Miners' Compensation Law in Pennsylvania, which went into effect Jan. 1, 1916, that led to the revision of the former certificate law enacted in 1885. Though the old law providing for certification is still in force, it is greatly modified by the later enactment.

As is well known, the compensation law made all coal operators who elected to come under its provisions liable for injuries received by their workmen while in the performance of their duties in and around the mines. That being the case, it was argued as being only reasonable to accord the operator the right to choose the kind of men he might place in charge of his mine.

It was claimed that the employment of a certified man in a responsible position in no way relieved the operator of his liability, which is true. "Why then" it was asked, "compel the operator to employ such certified men, who may not be such as he would choose for these positions?"

While the argument appeared logical, the enactment as it stands today makes the question of certification an anomaly, for the reason that there is no legal force in that section of the law which would compel the employment of certi-

fied men in all positions of responsibility underground.

At the same time, there is a great deal of truth in the statement so often made that certified men are in demand. Few coal operators, today, are willing to employ an untried and uncertified man in any responsible position underground. Only a few of the older men,

who have earned their right to act in an official capacity by long years of service, are to be found filling the positions named.

In the opinion of *Coal Age*, such should be granted certificates of service, making them eligible for the office they hold, as long as they remain in the employ of the same company.

Examination Questions Answered

Tennessee Mine Foremen's Examination Held at Knoxville, Oct. 18-20, 1921

(Selected Questions)

QUESTION—What observations should a mine foreman make during his visits through the mines of which he has charge?

ANSWER—A foreman should visit each working face with his eyes open to detect any dangerous condition or practice, which it is his duty to correct. He must note particularly the amount and kind of timber on hand, the manner in which the place is timbered, condition of the roof and coal and method of mining and blasting to see that everything is done safely and in compliance with the law. The foreman must observe the amount of coal that is down, the number of cars on hand or loaded, how much powder the man has in his place and where he keeps it, the way in which he handles and keeps his tools and other things pertaining to the man's safety. He must see that the place is properly ventilated, the breakthroughs of sufficient size and the air conducted forward so as to reach the face. If the place is generating gas and safety lamps are used, he must examine to see that the lamps are in good condition and each place safe for work.

QUESTION—An anemometer registers a velocity of 30,000 ft. per hr., in an airway 5 x 8 ft. in section; what is the volume of air passing through such airway per minute?

ANSWER—A velocity of 30,000 ft. per hr. is 500 ft. per min. The sectional area of this airway is $5 \times 8 = 40$ sq.ft. Assuming an average velocity of 500 ft. per min., the volume of air passing in this airway is $500 \times 40 = 20,000$ cu.ft. per min.

QUESTION—How would you ascertain whether an anemometer is in good working condition or not?

ANSWER—Where great accuracy is required, an anemometer in constant use should be returned to the factory for checking its calibration at least every year or two, depending on the care taken of the instrument. A mine foreman will sometimes apply what is called a "smoke test." For that purpose, he selects a straight piece of entry about 100 yd. in length and of

uniform size throughout. Having stationed a reliable helper at the inby end of this stretch, the foreman, holding the instrument exposed to the air current traveling the center of the airway, sets off a flash of powder and at the same time throws the instrument into gear. According to instructions previously given him, the helper signals with his lamp the moment the first smell of powder reaches him and, at that moment, the foreman throws the instrument out of gear. If the anemometer is registering correctly, its observed reading starting from zero should correspond to the distance measured on the entry, between the foreman and his helper.

QUESTION—Under what conditions would you consider coal dust dangerous in mines?

ANSWER—Coal dust accumulated in any considerable quantity, at the working face or on the roads air-courses and traveling ways, is always an element of danger in a mine. The danger increases with the fineness and inflammability of the coal, and is much greater if the mine is generating a small amount of gas. Other things being equal, coal dust is more dangerous in mines where blasting is performed, particularly if black powder is used for that purpose.

QUESTION—If you have an explosion and find it necessary to call the mine-rescue corps, what preparation would you make while it is arriving?

ANSWER—While waiting for the arrival of a mine-rescue team, following an explosion in the mine, every possible effort must be made to restore the circulation underground, by examining the ventilating apparatus and making any repairs that may be necessary. At the same time, word should be sent summoning physicians, and men should be employed to gather the necessary supplies of timber, canvas, brattice boards, nails and tools that will be required on entering the mine. First-aid supplies of every description should be procured and made ready for use, including blankets, stretchers and ambulances.

QUESTION—Which would you prefer, a force fan or an exhaust fan? Give your reasons.

ANSWER—The choice between a force or an exhaust fan will depend primarily on conditions in the mine. If the mine is generating gas, to such an extent that the main haulage road has been made the intake airway, it becomes necessary to employ an exhaust fan, in order to avoid the use of doors on the main haulage road. On the other hand, a force fan will often prove advantageous in the ventilation of a mine containing a considerable area of abandoned workings. The mine is then ventilated under a pressure greater than that of the atmosphere, and the tendency is to drive the gases back and keep them from entering the live workings. Under these conditions, the gases confined in the old works will often drain outward and escape to the surface through old openings or crevices in the strata.

QUESTION—In treating mine fires, which would you prefer, a live fire or a smothered fire and why?

ANSWER—It is not possible to state an absolute preference, in this case, without knowing the existing conditions. Both fires may be equally dangerous. A live fire, having gained considerable headway may be impossible of approach and require the sealing off of the mine or an entire section of the workings, before it can be controlled. While a smothered fire may generate a much larger proportion of deadly gas, as carbon monoxide, and often prove difficult to handle and extinguish, it can generally be approached on the intake side, which gives the workmen an advantage. A smothered fire, however, will often work its way under the gob and, for a time, defy all efforts to extinguish it.

QUESTION—Give the advantages and disadvantages of a gasoline pump, an air pump and an electrical pump.

ANSWER—A gasoline-driven pump will generally cost less to operate, but is objectionable in a mine, owing to the noxious gases discharged. A pump driven by compressed air has the advantage of supplying fresh air to the confined workings where it is located. Its operation, however, requires the installation of a pipe system, which is always expensive and liable at any time to be broken down by a fall of roof. An electric pump has a wider scope for use in the mine, because of the greater flexibility of a wire system for transmitting power to the pump. This installation will cost less than a pipe system. The disadvantage of an electric pump lies in the danger of gas being ignited by the sparking of wires or commutators and the blowing of fuses, which limits the use of such pumps to mines free from gas.

QUESTION—State the advantages of good roads in coal mines.

ANSWER—Good mine haulage roads are the chief factor in producing a large daily output of coal. The cost of repairs for rolling stock is much less; fewer accidents occur and the cost of production is decreased.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

OF BUSINESS sentiment as defined by the incidents of the closing weeks of the year, it may be said that there is a prevailing atmosphere of hopeful expectation, according to the December bulletin of business conditions issued by the Mechanics & Metals National Bank of the City of New York. "Actual volume of current business, apart from that which is distinctly seasonal," the bulletin continues, "is not large, nor is there any indication that a robust trade revival is in the course of development. As a matter of fact the country's commercial turnover is less than at the corresponding time in any of the past six years, yet a spirit of optimism marks the predictions which are being made for 1922.

"Underlying the prevailing confidence is a consciousness that some of the most difficult steps in the progress of domestic readjustment have been accomplished. The fact that commodity prices have for the most part checked their long and painful downward course and have even, in special instances, improved from their lowest recent level, is accepted as a sign that the period of severest deflation has run its course. A re-employment of a part of the army of men made idle through lack of work, an adjustment downward of wages to a level more in line with the scale of prices, and a relief from the menace of perennial strikes are factors which have helped to bring about a hopeful attitude; in addition there have been the evidences of progress toward cheaper transportation and lessened distribution costs, toward more equitable distribution of taxation, and toward a scale of expenditures, both private and governmental, far removed from the extravagance that was lately rampant.

"We see now, in a new perspective, what difficulties were stored up for the country during the period of rash inflation that we chose, from 1915 to 1920, to call a war boom. Deflation from a condition such as the country stood in two years ago has shown itself to be at best a hard performance. The principal difficulties have arisen from the disproportions that were brought about and by the manner in which these have thrown affairs out of balance at a time when stability was needed more than anything else.

"Our business structure at the moment is unquestionably nearer to a wholesome condition than we could, two years ago, have hoped for. Yet it is still to be determined how far we have proceeded toward that degree of stability from which a forward movement, on healthy, orderly lines, can confidently be counted on."

Americans Get Electric Contracts

A \$2,000,000 contract for electrical apparatus has been awarded to the Westinghouse Electrical International Co. by the Daide Electric Power Co. of Japan. The machinery is to be used in two hydro-electric plants which are to form part of a great power system for the Tokio district. The current is to be transmitted at 154,000 volts, the announcement said.

The International General Electric Co. has been awarded an order involving more than \$1,000,000 for

the electrification of forty miles of the Spanish Northern Railway.

Construction Work Increases

Statistics made public by the United States Chamber of Commerce show that new construction work throughout the country in the first ten months of this year nearly equalled construction for the whole of last year. The Chamber's survey is compiled from figures from forty-four important cities reporting \$603,000,000 in new construction projects in the ten months.

Ranks of Idle Reduced 40 P. C.

The latest bi-monthly survey by the National Industrial Conference Board of industrial economic conditions in the United States finds that opportunities for employment are becoming more numerous, especially in the Eastern States. Wage deflation continues to make progress, although against considerable organized resistance, and with lower wage scales business activity tends to increase. While at the beginning of the President's unemployment conference the number of unemployed was placed at about 3,500,000, the latest Government figures place the number at not more than 2,000,000.

N. Y. Central Orders Rails

The New York Central R.R. has placed contracts for the delivery of 125,000 tons of rails during 1922 and is said to be in the market for 25,000 tons additional. Inquiries for these orders have been in the market for some time. Allotment of the tonnage to steel companies has not yet been completed, but the Lackawanna Steel Co., the Illinois Steel Co. and the Inland Steel Co. are expected to receive the major portion of the order. The Cambria Steel Co. also is mentioned.

Railway Conditions Improving

Reports to the U. S. Railroad Labor Board show steadily improving conditions among the railroads of the country, according to a statement made Dec. 4 by Ben W. Hooper, vice chairman of the board. Mr. Hooper also took occasion to point out that the board's decision not to consider wage reductions for any class of employees until working rules for the class had been disposed of had not delayed consideration of wage disputes on any railroad or for any class of employees. The railroad situation is more conducive to optimism than it has been for many months, he said.

Steel Production Gaining

Steel production in November, according to the *Iron Age*, reached 1,415,481 tons, or at the rate of 47,183 tons daily, as contrasted with 1,246,676 tons, or at the daily rate of 40,215 tons, in October. Twenty-four furnaces were started in November and none blown out. The capacity of 120 furnaces active Dec. 1 was 51,665 daily, compared with 40,850 tons for 96 furnaces on Nov. 1. In reviewing events in the steel trade during the past week the journal says: "The Steel Corporation blew in twelve furnaces, or half of those that started in November, and the independent steel companies five, the remaining seven being merchant stacks."

In Upholding Right to Bar Pickets Supreme Court Deals Severe Blow to Organized Labor

IN declaring anti-picketing injunctions against labor unions valid, if they restrain acts of force and intimidation, the U. S. Supreme Court upheld the American Steel Foundries Co. in its suit against the Tri City Central Trades Council.

The decision, read by Chief Justice Taft Dec. 5, is one of the most serious in years from the standpoint of labor, dealing as it does a severe blow to what has hitherto been one of the most effective weapons of organized labor.

The decision of the court was by a vote of eight to one. Justice Clarke dissented and Justice Brandeis concurred in part.

Following is a summary of the decision:

The first question is whether section 20 of the Clayton Act is to be applied in this case. The act was passed while this case was pending in the Circuit Court of Appeals. In *Duplex Co. vs. Deering*, a suit to restrain a secondary boycott had been brought before the passage of the act but did not come to hearing until after its passage. It was held that because relief by injunction operates in future and the right to it must be determined as of the time of the hearing section 20 of the act relating to injunctions was controlling in so far as a decree entered after its passage should conform to its provision. The decree here appealed from the District Court had been entered before the Clayton Act passed but the whole cause was taken up by the appeal. The complainant had no vested right in the decree of the District Court while it was subject to review. The Circuit Court of Appeals was called upon to approve or change the decree and was obliged therefore to regard the statute in its conclusion and so are we. (The court then quotes section 20 of the Clayton Act.)

It has been determined by this court that the irreparable injury to property or to a property right in the first paragraph of section 20 includes injury to the business of an employer and that the second paragraph applies only in cases growing out of a dispute concerning terms or conditions of employment between an employer and an employee, between employers and employees, or between employees, or between persons employed and persons seeking employment and not to such dispute between an employer and persons who are neither ex-employees nor seeking employment (*Duplex Printing Co. vs. Deering*). Only two of the defendants who left at the time of the strike can invoke in their behalf section 20. We must therefore first consider the propriety of the decree as against them and then as against the other defendants. It is clear that Congress wished to forbid the use by the federal courts of their equity arm to prevent peaceful persuasion by employees, discharged or expectant in promotion of their side of the dispute and to secure them against judicial restraint in obtaining or communicating information in any place where they might lawfully be. This introduces no new principle into the equity jurisprudence of those courts. It is merely declaratory of what was the best practice always. Congress thought it wise to stabilize this rule of action and render it uniform.

The object and problem of Congress in section 20 and in courts of equity before its enactment was to reconcile the rights of the employer in his business and in the access of his employees to his place of business and egress therefrom without intimidation or obstruction, on the one hand, and the right of the employees recent or expectant to use peaceable and lawful means to induce present employees and would-be employees to join their ranks, on the other.

If in their attempts at persuasion or communication with those who would enlist with them, those of the labor side adopt methods which, however lawful in their announced purpose, inevitably lead to intimidation or obstruction, then it is the court's duty with the terms of section 20 to modify so as to limit what the propagandists do

as to time, manner and place in such a way as to prevent infractions of the law and violations of the right of the employees and of the employers for whom they wish to work.

How far may men go in persuasion and communication and still not violate the right of those whom they would influence? In going to and from work men have a right to as free a passage without obstruction as the streets afford, consistent with the right of others to enjoy the same privilege. We are a social people and the accosting by one of another in an inoffensive way and an offer by one to communicate and discuss information with a view to influencing the other's action are not regarded as aggression or a violation of that other's rights. If, however, the offer is declined, as it may rightfully be, then persistence, importunity, following and dogging become unjustifiable annoyance and obstruction which is likely soon to savor of intimidation. From all of this the person sought to be influenced has a right to be free and his employer has the right to have him free. The nearer this importuned intercepting of employees or would-be employees is to the place of business, the greater the obstruction and interference with the business and especially with the property right of access of the employer. Attempted discussion and argument of this kind in such proximity is certain to attract attention and congregation of the curious or, it may be, interested bystanders, and thus to increase the obstruction as well as the aspect of intimidation which the situation quickly assumes.

In the present case the three or four groups of picketers were made up of from four to twelve in a group. They constituted the picket line. Each union interested had several representatives on the picket line and assaults and violence ensued. They began early and continued from time to time during the three weeks of the strike after the picketing began. All information tendered, all arguments advanced and all persuasion used under such circumstances were intimidation. They could not be otherwise. It is idle to talk of peaceful communication in such a place and under such conditions. The numbers of the pickets in the groups constituted intimidation. The name "picket" indicated a militant purpose inconsistent with peaceful persuasion. The crowds they drew made the passage of employees to and from the place of work one of running the gauntlet. Persuasion or communication attempted in such a presence and under such conditions was anything but peaceable and lawful. When one or more assaults and disturbances ensued they characterized the whole campaign which became effective because of its intimidating character, in spite of the admonition given by the leaders to their followers as to lawful methods to be pursued, however sincere.

Our conclusion is that picketing thus instituted is unlawful and cannot be peaceable and may be properly enjoined by the specific term because its meaning is clearly understood in the sphere of the controversy by those who are parties to it. We are supported in that view by many well reasoned authorities, although there has been contrariety of view.

A restraining order against picketing will advise earnest advocates of labor's cause that the law does not look with favor on an enforced discussion of the merits of the issue between individuals who wish to work and groups of those who do not under conditions which subject the individuals who wish to work to a severe test of their nerve and physical strength and courage. But while this is so we must have every regard to the Congressional intention manifested in the act and to the principle of existing law which declares that ex-employees and others properly acting with them shall have an opportunity so far as is consistent with peace and law to observe who are still working for the employer, to communicate with them and to persuade them to join the ranks of his opponents in a lawful economic struggle. Regarding as primary the rights of the employees to work for whom they will and undisturbed by annoying importunity and intimidation of numbers, to go freely to and from their place of labor, and keeping in mind the right of the employer incident to his property and business to free access of such employees, what can be done to reconcile the conflicting interests?

Each case must turn on its own circumstances. It is a case for the flexible remedial power of a court of equity which may try one mode of restraint, and if it fails or proves to be too drastic may change it. We think that the strikers and their sympathizers engaged in the economic struggle should be limited to one representative for each point of ingress and egress in the plant or place of business and that all others be enjoined from congregating or loitering at the plant or in the neighboring streets by which access is had to the plant; that such representatives should have the right of observation, communication and persuasion but with special admonition that their communication, arguments and appeals shall not be abusive, libelous or threatening, and that they shall not approach individuals together but singly and shall not in their single efforts at communication or persuasion obstruct an unwilling listener by importunate following or dogging his steps. This is not laid down as a rigid rule but only as one which should apply to this case as disclosed by the evidence and which may be varied in other cases. The purpose should be to prevent the inevitable intimidation of groups of pickets but to allow missionaries. With these views it is apparent that we cannot sustain the qualification of the order of the District Court which the Circuit Court of Appeals made.

There remains to consider the part of the decree of the District Court which forbade them by persuasion to induce employees or would-be employees to leave or stay out of complainant's employ. The effect of it is to enjoin persuasion by them at any time or place. This certainly conflicts with section 20 of the Clayton Act. The decree must be modified as to these two defendants by striking out the word "persuasion."

The second important question is as to the form of the decree against the Tri City Trades Council and the other defendants. What has been said as to picketing applies to them, of course, as fully as to the ex-employees, but how as to the injunction against persuasion? The argument made on behalf of the American Foundries in support of enjoining persuasion is that the Tri City Trades Council and other defendants, being neither employees nor strikers, were intruders into the controversy and were engaged without excuse in an unlawful conspiracy to injure the Foundries by enticing its employees and therefore should be enjoined.

Is interference of a labor organization by persuasion and appeal to induce a strike against low wages under such circumstances without lawful excuse and malicious? We think not. Labor unions are recognized by the Clayton Act as legal when instituted for mutual help and lawfully carrying out their legitimate object. They have long been thus recognized by the courts. A single employee was helpless in dealing with an employer. He was dependent ordinarily for his daily wage for the maintenance of self and family. If the employer refused to pay him the wages that he thought fair he was nevertheless unable to leave the employ and resist arbitrary and unfair treatment. Union was essential to give labor opportunity to deal on equity with employers.

The right to combine for such a lawful purpose has for many years not been denied by any court. The strike became a lawful instrument in a lawful economic struggle or competition between employer and employees as to the share or division of them of the joint products of labor and capital. To render this combination at all effective employees must make their combination extend beyond one shop. Therefore they may use all lawful propaganda to enlarge their membership and especially among those whose labor at lower wages will injure their whole guild. It is impossible to hold such persuasion and propaganda to be without excuse and malicious. The principle of the unlawfulness of maliciously enticing laborers still remains and action may be maintained therefor in proper cases, but to make it applicable to local labor unions in such a case as this seems to be unreasonable.

Counsel for the steel foundries rely on two cases in this court to support their contention. The first is that of the *Hitchman Coal & Coke Co. vs. Mitchell*. The principle followed in the *Hitchman* case cannot be invoked here. There the action was

by a coal mining company of West Virginia against the officers of an international labor union and others to enjoin them from carrying out a plan to bring the employees of the complainant company and all the West Virginia mining companies into the international union, so that the union could control, through the union employees, the production and sale of coal in West Virginia in competition with the mines of Ohio and other states. The plan thus projected was carried out in the case of the complainant company by the use of deception and misrepresentation with its non-union employees, by seeking to induce such employees to become members of the union, contrary to the express term of their con-

tract of employment, that they would not remain in complainant's employ if union men, and after enough such employees had been secretly secured, suddenly to declare a strike against complainant and to leave it in a helpless situation, in which it would have to consent to be unionized. This court held that the purpose was not lawful and that the means were not lawful and that the defendants were thus engaged in an unlawful conspiracy which should be enjoined. The circumstances of the case make it no authority for the contention here. The Hitchman case was cited in the Duplex case but there is nothing in the *ratio decidendi* of either which limits our conclusion here or which requires us to

hold that the members of a local labor union and the union itself do not have sufficient interest in the wages paid to the employees of any employer in the community to justify their use of lawful and peaceable persuasion to induce these employees to refuse to accept such reduced wages and to quit their employment. For this reason we think that the restraint from persuasion by the District Court was improper and in that regard the decree must be modified. In this we agree with the Circuit Court of Appeals. The decree of the Circuit Court of Appeals is reversed in part and affirmed in part and the case remanded to the District Court for modification of its decree in conformity with this opinion.

Judge Maxwell Affirms Decision Reducing Tax Valuation of Coal Lands

IN THE tax valuation case of the Woodward & Williamson and Reynolds estates in Luzerne County, Pennsylvania, Judge Maxwell, of Bradford County, has affirmed his previous decision and has sealed the bill. These coal properties had been valued at approximately \$1,300,000. Representatives of the estates made appeals from the decision of the County Commissioners and Judge Maxwell was brought in to hear the case. He reduced the valuations to approximately \$400,000, but granted a rule to show cause why his adjudication should not be reopened. His affirmation of the original decision marks the end of this second hearing, though counsel for Edwardsville borough and Edwardsville school district, which will lose about \$20,000 in taxes, probably will appeal to the Supreme Court.

Harding Approves Doubling Appropriation For Work in Interest of Foreign Trade

IN view of the propitious start made by the commodity divisions of the Department of Commerce, the President and the Director of the Budget have approved a request for an appropriation of \$540,000 for the continuance of the work in the interest of the export industries during the next fiscal year. This is an increase of \$290,000 over the amount appropriated for this work during the current fiscal year. It is proposed to set up seventeen additional commodity divisions, of which petroleum will be one. The existing commodity divisions include one on fuels, which will become a coal division. The present fuels division is receiving an allotment of \$15,000. In each case the chief of the division is to receive a salary of \$6,000, and the assistant chief, \$2,000.

For the general work of promoting commerce Congress is asked to appropriate \$524,050, an increase of \$199,050 over the appropriation for the current year. Under this

appropriation it is proposed to establish new trade commissioner offices in Russia, Greece and Canada. It also is the plan to undertake special technical investigations in connection with fuels in England, Belgium and Germany.

In addition, \$213,650 is asked to promote further the commerce between the United States and Latin America. This is an increase of \$113,650 over the current year's appropriations. A portion of the increase is to be applied to the establishment of new trade commissioner offices in Cuba, Colombia, Uruguay and Venezuela.

State to Open Rescue Stations and Demand First Aid of Foremen and Inspectors

AT a meeting held by L. Blenkinsopp, chief inspector, Department of Mines, at Lexington, Ky., for the purpose of creating first-aid stations throughout the State of Kentucky, the following inspectors were present: William Roberts, Madisonville; W. H. Hunt, Central City; J. A. Lewis, Lexington; R. D. Collett, Pineville; Lacy Laxton, Harlan; H. C. Faulkner, Hazard; M. L. Wells, Paintsville and Grant Phillips, Pikeville.

A committee appointed by Mr. Blenkinsopp adopted the following resolutions and presented them to him for his approval: That the Department of Mines give each inspector at a proper place in his district a first-aid and rescue station, equipped with three Paul breathing apparatus and a complete first-aid outfit, with proper supplies for its maintenance and operation. That the inspectors of each district co-operate with the operators in training teams at each mine and give all the instructions and information possible to prepare first-aid and rescue teams throughout the state. That applicants for first-class mine foreman's certificates be required to pass a first-aid examination before being considered qualified for a first-class certificate. After discussion the resolutions were accepted.

J. M. Webb, foreman, U. S. Bureau of Mines, Knoxville, Tenn., gave inspectors several days of extensive training in first-aid and rescue work.

Kentucky Inspectorate

From left to right: J. M. Webb, foreman, U. S. Bureau of Mines, Knoxville, Tenn.; M. L. Wells, Lacy Laxton, Will Roberts, Beatrice Langley, chief clerk, Lexington; J. A. Lewis, R. D. Collett, W. H. Hunt, H. C. Faulkner, Grant Phillips and L. Blenkinsopp, chief inspector, Lexington, Kentucky.



Congress Scrutinizes Prices in Considering Government Appropriations for Coal

WITH the annual appearance of government officials before Congressional appropriations committees the discussion of coal prices is resumed. Acting Supervising Architect Wetmore of the Treasury said the Treasury Department had purchased coal for public buildings cheaper than other departments. At the mines in carload lots delivered to communities it had bought bituminous for \$5.50 a ton and anthracite for \$9.50. Chairman Madden of the House Appropriations Committee said the National Home for Disabled Volunteer Soldiers had bought coal delivered in cellars at \$6 a ton, and that Mr. Wetmore was in error in asserting he had bought coal cheaper than other departments.

Committee members thought the navy should get back to the pre-war days, when navy fuel appropriations averaged about \$5,000,000 annually. Chairman Madden threatened to refuse any appropriation whatever in the future if the navy did not keep within the original yearly appropriations made by Congress. He said the navy had been extravagant in waste of fuel. He intimated that in future years the navy would be allowed only \$7,500,000 annually for fuel.

Representative Kelley, of Michigan, in charge specially of naval appropriations for the committee, closely questioned Admiral Coontz and other naval officers as to fuel expenditures. It developed that on Oct. 1 of this year the navy had on hand 923,498 tons of coal, 69,000 tons being at Cavite, 4,000 tons at Guam, 300,000 tons at Hampton Roads, Va., 109,000 tons at Pearl Harbor and 111,000 tons at Tiburon, Cal. The average price for issues to the naval vessels during July, August and September had been \$8.26, including transportation.

Power Plants Consumed 139,336 More Tons Of Coal in October Than in September

CENTRAL power stations consumed 2,720,826 net tons of coal in October, in the production of 2,402,069,000 kw.-hr. of electric power. The same plants used 2,581,490 tons in September, 2,572,569 tons in August, 2,453,945 tons in July and 2,434,349 tons in June.

October, therefore, represents a substantial gain over the summer months in the consumption of coal by public utilities. The total production of power by these companies in October was identical with that in January of this year, but in October 67.9 per cent of the total was generated by steam compared with 62.1 per cent in January, the remainder in each month having come from water power. The output by fuel power in October was the same as in October, 1920.

Sanitary Experts to Tell House Committee Effect of Mine Water on Streams

HEARINGS were to have been reopened on Dec. 7 by the Rivers and Harbors Committee of the House of Representatives to consider further the matter of pollution of waters. The fact that the committee is beginning hearings so promptly after the reconvening of Congress is an indication that it expects to take prompt action on this legislation. Those who favor regulations which will prevent the pollution of streams and coastal waters have made such a good case before the committee that it is feared the committee may be influenced to adopt regulations so drastic as to have an untoward effect on such industries as coal mining and manufacturing.

Little has been said in defense of the practice of dumping oil waste at sea and in harbors. The difficulty in legislating to meet that situation is that such a law could not be fully effective beyond the three-mile limit and because of the difficulties of apprehending those responsible for the discharge of these wastes at sea. It is believed, however, that some means will be devised which will make it easier for ships to rid themselves of oil wastes in harbors and which will make it hazardous for any boat to contribute to what

is becoming a serious nuisance on the Atlantic and Gulf coasts. There is insistence that this legislation be coupled with laws governing pollution of inland waterways by industrial plants and mines.

Representatives of chemical plants already have testified before the committee as to the character of their wastes. Mine operators now are to be heard. The National Coal Association has been gathering data regarding the volume and possible effect of acid water discharges from mines. It is regarded as probable that its witnesses will be able to convince the committee that mine water constitutes an insignificant portion of the volume of most streams and that it tends to disinfect sewage pollution. Sanitary specialists will be brought forward to testify as to the general effect of mine water on streams.

Government Will Define Scope of Trade Association Activities

ACTIVITIES and functions that trade associations may legally engage in will soon be announced by the government, E. W. McCullough, manager of the fabricated production department of the Chamber of Commerce of the United States, told the American Face Brick Association in annual convention, Dec. 2, at White Sulphur Springs, W. Va. He said that such a statement would have been issued before now but for the fact that several governmental cases are now pending against certain trade associations, involving such questions as the proper use of statistics, open price plans and averages in cost accounting.

According to Mr. McCullough, Secretary Hoover, of the Department of Commerce, desires closer contact with the industries through their associations, but Secretary Hoover has intimated that such organizations should put themselves in position to speak for their industries by including in their membership the largest possible representation; and also through the perfection of their machinery for gathering, analyzing and compiling all desirable information not only of service to themselves but to the government and the public. It is to make possible such co-operation that the government is expected to define the proper functions of a trade association, Mr. McCullough said.

October Mine Fatalities Fewer Than Last Year; Ratio to Output Slightly Higher

THERE were 167 deaths during October as the result of accidents in and about the coal mines of the country, according to a report by the U. S. Bureau of Mines. This represents a decrease of 27 fatalities, or about 14 per cent, from the coal-mine fatality record for October, 1920, in which month 194 men were killed. Based upon an estimated output of 51,321,000 net tons in October, 1921, the fatality rate is 3.25 per million tons produced. The rate for October, 1920, was 3.22, when the production of coal was 60,200,000 tons.

Of the total number of fatalities in October of the present year, 131 occurred at bituminous mines throughout the country and 36 at the anthracite mines in Pennsylvania. Pennsylvania bituminous mines had 30 fatal accidents, an increase of 1 over October a year ago; West Virginia 30, a reduction of 3; Illinois 17, a reduction of 12; Ohio 12, no change; Kentucky 11, a decrease of 3; Indiana 5, a reduction of 7; and Alabama 3, a reduction of 2.

During the first ten months of the present year 1,629 men died from accidents at all coal mines, against 1,880 during the corresponding months of 1920, a decrease of 251 fatalities, or 13 per cent. These figures represent a fatality rate of 3.93 per million tons mined in 1921 and 3.57 per million tons in 1920.

For the Pennsylvania anthracite mines alone, fatalities during the present year have averaged 44.3 per month, as compared with a monthly average of 41.2 during the first ten months of 1920. The fatality rates have been 5.95 per million tons mined in 1921 and 5.63 per million tons mined in 1920.

Calls Coal Mining a Spendthrift Industry; Consumer Can Do Most to Stop Leaks

CHARACTERIZING coal mining as a spendthrift industry in an address before the Coal Mining Institute of America at Pittsburgh, Pa., Dec. 7, George Otis Smith, Director of the U. S. Geological Survey, based his indictment on "its wasteful use of natural wealth, its wasteful use of invested capital and its wasteful use of labor—three national resources that we cannot afford to waste."

Thereupon he took this "close-up" of coal reserves:

"Pennsylvania, with an original holding of only 5 per cent of the coal of the United States, has furnished nearly half of the coal mined in the whole country since 1807. Or, taking an even closer view, we see that the Pittsburgh coal bed, which included about 10 per cent of the original tonnage of Pennsylvania coal, has contributed nearly 30 per cent of the coal mined in this state. In round figures, two billion tons out of the fourteen billion tons mined in the United States has come from the Pennsylvania portion of this single bed, which originally contained less than one-half of 1 per cent of the country's supply of coal above the grade of lignite. In other words, then, while there is more than 99 per cent of the coal left in the country as a whole, there is only about 80 per cent left of the Pittsburgh bed in this state. Making further reference to the facts furnished to me by M. R. Campbell, of the U. S. Geological Survey, I note that fully half of this reserve of Pittsburgh coal underlies Greene and Washington counties at considerable depth. In short, of the easily mined and better quality Pittsburgh coal only about twice as much remains as has been mined, and this coal is being mined faster than ever before. Indeed, in 1918 the Pittsburgh bed contributed 53 per cent on Pennsylvania's output and 16 per cent of the soft coal mined in the whole country, as well as another 6 per cent from the same bed in adjacent states. This record of the Pittsburgh coal adds to the renown of the city for which the coal was named and for whose prosperity it has been the foundation. But that pace cannot be maintained forever."

MORE THAN TWO BILLIONS INVESTED IN COAL MINING

"Unfortunately we lack exact knowledge as to how much capital is tied up in the business of mining coal," he continued. "The census figures available indicate that there was in 1919 about \$1,900,000,000 in the bituminous mining industry and over \$400,000,000 in the anthracite industry. Dividing these totals for capital by a normal year's production gives a little over \$3.50 of capital per net ton of soft coal produced and nearly \$5 per net ton of anthracite produced. This investment of two and one-third billion dollars makes the business one in which any appreciable saving on capital account is well worth while."

"In an off year, like 1919, however, the capital which had to be assessed against each ton of soft coal mined was \$4 instead of \$3.50. As figured by Mr. Tryon, to whom, as usual, I am largely indebted for my statistics, the soft coal mines of the country have an annual capacity of 800,000,000 tons. This is overdevelopment, for it means that the capital in terms of capacity is less than \$2.50 a ton, while in terms of actual output in the census year it was more than \$4 a ton. The coal mines therefore don't need more capital; they need more product. Is it not a spendthrift industry that uses \$4 of capital where \$2.50 will do the work?"

"It is conservative to say that our total mine capacity is fully a third larger than the largest annual output, and even a fifth larger than the largest output for a single week—and that week a most exceptional one. This is a larger factor of safety than we can well afford, and to that extent, then, is there inflation in soft-coal mining. This indicates that there is half a billion dollars tied up in the soft-coal business that is misplaced capital—capital needed elsewhere. In so far as this capital is paid the wages that are its due the consumer of a ton of coal is paying in normal years for the use of \$3.50 where \$2.50 or less would serve his purpose."

"This is a simple statement of the wastefulness of having

too many mines, and never was the condition worse than now. Evidently the competitive system has poorly served the consumer of coal."

"Naturally, the wasteful inflation in mine capacity is paralleled by an equally wasteful equipment of the mines with labor. This year, for instance, it appears that the average mine worker in the bituminous districts of the country will work only 172 days, but he and his family must live during the 136 days of enforced idleness due to lack of demand on the average mine for its product. Even in a more normal year the percentage of lost days is so high that we coal consumers are evidently supporting not only idleness of capital but idleness of labor."

"The responsibility of the general public in its attitude toward coal has never been sufficiently emphasized. Indeed, the first step is to prove to the average citizen that he has any duty in the matter other than to pay for the coal he buys."

"Were I addressing coal consumers rather than coal producers my advice to those who ask for cheaper coal would be to stop the leaks nearest home and then help the coal operator to stop his leaks. The high cost of distribution may be relatively much higher than the high cost production, and its control is nearer the coal buyer, who can personally learn how much more it costs the local dealer to deliver his largest tonnage when the blizzard strikes town and to equip his yard to handle a peak demand far in excess of the average requirements of his trade. Then as the coal user in his investigation goes farther from home he will discover what added expense is put on the railroads by being forced to haul the most coal in winter, a requirement resulting in overworked locomotives in mid-winter and idle freight cars in spring and summer. And then a visit to the mines will show the coal user a similar distribution of idleness, the mines and miners working only half time during the spring and summer because there is then this limiting factor, 'no market for the coal.'"

COAL BUSINESS TOO CROWDED FOR PUBLIC GOOD

"The investor likewise has a duty to perform; he should refuse to add to the oversupply of capital in the coal industry. Whether legislation can stop this overdevelopment or not, public opinion ought to brand as almost criminal any further inflation of the coal business, whether in opening new mines promiscuously or in starting new jobbing firms or new retail yards; the whole coal business is too crowded for the public good."

"In short, what we need in these United States of ours are fewer and larger and better coal mines—even mines that might work three shifts a day; fewer enlistments in the army of mine workers, who then could count on the opportunity to work 290 or 300 days a year, a privilege which coal miners in the European countries had in the pre-war years. Of course, the desired deflation of mine labor would not mean the actual discharge of experienced mine workers but rather the adjustment of recruiting to the real needs of the industry. Also we need fewer middlemen, for too often they perform a worth-while service only in times of excessive demand, when the market belongs to the sellers, and fewer retailers, who then could charge lower prices for their service because they, too, would not have to maintain idle equipment and idle employees during many months of the year."

"Yes, the coal industry is a spendthrift, but the consumer pays for all this waste, and he is the one who can help most in stopping the leaks. A new view must be taken of the present price of coal; the worst of it is that coal costs too much because we pay for too much idleness—our spendthrift industry loafs too many months in the year."

NELSON B. GASKILL, OF NEW JERSEY, a Republican member of the Federal Trade Commission, succeeded to the chairmanship of the commission Dec. 1 for a term of one year. Mr. Gaskill, who was vice-chairman during the past year, succeeds to the chairmanship under the rule of the commission which provides for rotation in the office of chairman among the several commissioners. Mr. Gaskill was appointed to the commission in December, 1919.

Coal Consumption Exceeding Output; Danger of Stocks Dwindling to Unsafe Level in Event of Strike

BY PAUL WOOTTON
Washington Correspondent

INFORMATION reaching both official and private agencies in Washington during the past week indicates clearly that the country is now burning considerably more coal than it is producing. In view of the fact that two strike scares have not materialized, it is feared that the country will continue to coast on its stocks until it will be too late to build them up again even should there be advance indications that the threatened coal strike may be called.

While the Nov. 1 stocks were relatively large and worry could be dismissed were there nothing to consider more than the ordinary complications of winter weather, high government officials are not at all optimistic in the view they are taking of the labor situation in the coal industry. No publicity has been given to a number of conferences which have been held in Washington with the leaders of the mine workers, but it is known that no progress has been made in the effort to devise a peaceable solution of the labor situation. The President's reference to labor codes in his message to Congress is an indication of the attention which the chief executive has been giving this matter. It is generally recognized in official circles that should the administration be able to devise a satisfactory means of avoiding the threatened coal strike, thereby setting a precedent which could be followed in other disputes, this one accomplishment would be sufficient to insure the classification of the administration as a successful one. In that connection much significance is attached to the recommendations which probably will be made by Senator Kenyon in connection with the investigation of the Mingo situation. It is believed that this recommendation will contain suggestions of a most significant sort. It is recognized that the non-union fields hold the key to the situation.

DISCUSSES RELATIONS OF CAPITAL AND LABOR

President Harding's remarks on the relations of capital and labor were as follows:

"The right of labor to organize is just as fundamental and necessary as is the right of capital to organize. The right of labor to negotiate, to deal with and solve its particular problems in an organized way, through its chosen agents, is just as essential as is the right of capital to organize, to maintain corporations, to limit the liabilities of stockholders. Indeed, we have come to recognize that the limited liability of the citizen as a member of a labor organization closely parallels the limitation of liability of the citizen as a stockholder in a corporation for profit. Along this line of reasoning we shall make the greatest progress toward solution of our problem of capital and labor.

"In the case of the corporation which enjoys the privilege of limited liability of stockholders, particularly when engaged in the public service, it is recognized that the outside public has a large concern which must be protected, and so we provide regulations, restrictions, and in some cases detailed supervision. Likewise, in the case of labor organizations, we might well apply similar and equally well-defined principles of regulation and supervision in order to conserve the public's interests as affected by their operations.

"Just as it is not desirable that a corporation shall be allowed to impose undue exactions upon the public, so it is not desirable that a labor organization be permitted to exact unfair terms of employment or subject the public to actual distress in order to enforce its terms. Finally, just as we are earnestly seeking for procedures whereby to adjust and settle political differences between nations without resort to war, so we may well look about for means to settle the differences between organized capital and organized labor without resort to those forms of warfare which we recognize under the name of strikes, lockouts, boycotts and the like.

"As we have great bodies of law carefully regulating the organization and operations of industrial and financial cor-

porations, as we have treaties and compacts among nations which look to the settlement of differences without the necessity of conflict in arms, so we might well have plans of conference, of common counsel, of mediation, arbitration, and judicial determination in controversies between labor and capital. To accomplish this would involve the necessity to develop a thoroughgoing code of practice in dealing with such affairs. It might be well to frankly set forth the superior interest of the community as a whole to either the labor group or the capital group. With rights, privileges, immunities and modes of organization thus carefully defined, it should be possible to set up judicial or quasi judicial tribunals for the consideration of and determination of all disputes which menace the public welfare.

"In an industrial society such as ours the strike, the lockout and the boycott are as much out of place and as disastrous in their results as is war or armed revolution in the domain of politics. The same disposition to reasonableness, to conciliation, to recognition of the other side's point of view, the same provision of fair and recognized tribunals and process ought to make it possible to solve the one set of questions as easily as the other. I believe the solution is possible.

"The consideration of such a policy would necessitate the exercise of care and deliberation in the construction of a code and a charter of elemental rights dealing with the relations of employer and employee. This foundation in the law, dealing with the modern conditions of social and economic life, would hasten the building of the temple of peace in industry, which a rejoicing nation would acclaim."

Wage Cut Causes Spurt in New River Field; Upper Potomac Miners Restive

MINING activities in the New River smokeless coal field are increasing, the change being due to miners of fifteen mines reverting to the 1919 wage scale. Pick and machine men now receive 24c. less a ton and day men \$5 instead of \$7.50. Union miners of the fifteen mines have surrendered their charters to the district headquarters of the United Mine Workers at Beckley, it is said, so that they will be free of obligation to the national headquarters.

Developments in the upper Potomac region of West Virginia indicate that miners there are becoming restive almost to the point of withdrawing from the union in order to obtain work. The upper Potomac field is in District 16, United Mine Workers, which also embraces the Georges Creek field. Some of the mines in the upper Potomac field are in West Virginia and some are in Garrett County, Maryland, the mines being served by the Western Maryland Ry. The mining rate in the upper Potomac region is \$1.31 a ton, which operators say is so much higher than that prevailing in other fields that they cannot compete, and hence their mines are idle. Mine owners have indicated that they are willing to resume operations on a lower rate and many miners have shown a disposition to accept a reduction but have been dissuaded from doing so by union officials. That has been particularly the case at Blaine, W. Va., where miners were on the point of accepting reduction when they were influenced to hold out for the higher rate by officials of the union. So far the Blaine mines are still idle.

AFTER HAVING SPENT SEVERAL MONTHS in investigating the immediate problems of agriculture, the joint congressional committee on agriculture now has taken up an investigation of coal. The committee expects to include in its conclusions some recommendations as to coal.

Watkins Attributes Depression to War Profits And Wages; Must Cut Coal Costs

ADDRESSING a meeting of the Chamber of Commerce of Altoona, Pa., Dec. 8, Thomas H. Watkins, president of the Pennsylvania Coal & Coke Corporation, said that nothing would prevent further depression in business conditions but a determination on the part of all to pull together for the common good. He charged that depression was being prolonged by selfish groups trying to preserve war profits and wages.

After reviewing general business conditions Mr. Watkins said that coal is a basic industry and that the operator and miner must bring down the cost, incidentally giving the following outline of the trend of coal miners' wages during the last twenty years:

"It must be admitted that twenty years ago conditions surrounding the bituminous industry of this country were deplorable, both for the miner and the operator. As we look back, this country was considered prosperous as compared with other countries at that period; wages in all lines of industry were more or less balanced, and the cost of living was somewhat in line with the wages earned. Up to April 1, 1900, the wages of the highest-paid men working by the day was \$1.90. Motormen were paid \$1.75. From 1901 to 1903 the standard rate was \$2.25. In 1904 it was \$2.40. In 1905 it was reduced to \$2.27. In 1907 it was restored to \$2.40. In 1910 and 1911 it was \$2.53, remaining at that figure until April 1, 1916, when it was raised to \$2.77.

"With the foreign war, higher wages ensued. The same class of rates was advanced in April, 1917, to \$3.60. On Nov. 1, 1917, as a result of another demand on the part of the miners, wages were advanced to \$5 a day. The national strike began Nov. 1, 1919, and lasted about six weeks, the men returning to work on a rate of \$5.70 per day. On April 1, 1920, under the award of the Bituminous Coal Commission, the wage was advanced to \$6. The miners, protesting against that decision, forced another increase on Aug. 15, 1920, to \$7.50, so that we see in twenty years wages advanced from \$1.90 per day to \$7.50 per day. The rate for pick mining in the central Pennsylvania district went from 50c. per ton in 1900 to \$1.2803 a ton, the present rate. The miners can, and do, earn at these rates from \$150 to \$350 per month.

"The miners' union takes credit for these advances, while, as a matter of fact, they were caused by conditions which affected wages generally up to last year. Breaking of contracts and strikes caused some of them. The last administration's policy of coddling labor through the war and threats with time watches held over our Congress by the railroad unions forced the Adamson law, and organized labor leaders found all they had to do was threaten and the administration would "fall" for all their demands—the public and employer rendered helpless. These increased wages caused increased freight rates, caused the increase in the cost of living, and the vicious circle went on."

Awards Contracts for 96,650 Tons of Coal For Ohio State Institutions

CONTRACTS for 96,650 tons of coal have been awarded by the Ohio Purchasing Department for fuel for various state institutions. Bids for this coal were opened Nov. 21 after contracts awarded by the former incumbent in the office were declared illegal in the courts. New bids will be asked for for about 20,000 tons of coal for the Ohio Penitentiary and the State Hospital at Columbus, as it was decided to ask for bids on nut, pea and slack instead of mine-run, thereby making a saving of about \$17,000.

The Hemlock Coal Co., of Nelsonville, was awarded the contract for 10,000 tons of nut, pea and slack for the Epileptic Hospital, Gallipolis, at \$2.34 per ton; 11,000 tons of nut, pea and slack for the Orient Institution for the Feeble Minded at \$2.90; 11,000 tons for the Columbus Institution for the Feeble Minded at \$2.62; 3,000 tons of nut, pea and slack for the Reformatory at Mansfield at \$2.90; 5,000 tons of nut, pea and slack for the State Hos-

pital at Dayton at \$3.25; 3,000 tons of nut, pea and slack for the State Hospital at Lima at \$3.32; 5,500 tons of nut, pea and slack for the State Hospital at Cleveland at \$3.32 and 1,200 tons of mine-run for the Woman's Reformatory at Massillon at \$3.74.

The Consolidated Coal Co., Columbus, was awarded contracts for 3,300 tons of mine-run for the Girls' Industrial School at Delaware at \$3.61; 500 tons of mine-run and 100 tons of lump for the Orient Institution for the Feeble Minded at \$3.61 and \$4.14 respectively; 2,000 tons of mine-run for the Sanitarium at Mount Vernon at \$3.61; 250 tons of mine-run and 1,150 tons of mine-run for the prison construction department and the London prison farm at \$4.03. The Union Coal Co., of Cleveland, will furnish 1,500 tons of mine-run for the Cleveland State Hospital at \$3.56; 6,500 tons of mine-run for the Ohio Soldiers' and Sailors' Home, Sandusky, at \$3.91, and 7,000 tons mine-run for the Toledo State Hospital at \$3.91.

The Fletcher-Williams Coal Co., of Columbus, will furnish 1,200 tons of mine-run for the State Institution for the Blind, Columbus, at \$4.35, and 450 tons of mine-run for the Wyandotte Building, Columbus, at \$4.36. Wayne Coal Co., of New Lexington, will furnish 7,000 tons of nut, pea and slack for the State Hospital at Massillon at \$2.82, and 700 tons of mine-run for the same institution at \$3.22. The Woodland Coal Co., of Nelsonville, will furnish 6,500 tons of mine-run for the State Hospital at Athens for \$2.84; the Highland Coal Co., of Nelsonville, will furnish 4,500 tons of mine-run for the Boys' Industrial School at Lancaster at \$3.12, and the Burns Coal Co., of Columbus, will furnish 1,300 tons of nut, pea and slack, delivered at \$3.34.

Blames Freight on Coal, Not Mine Cost, For Competition of Corn as Fuel

FARMERS of the Middle West are able to sell their corn to householders for fuel at a higher price than they can get for it at the elevator, and householders can pay the price of corn and still save money by not having to pay the current price for coal in that territory, according to a statement made public Saturday, Dec. 10, by George H. Cushing, managing director of the American Wholesale Coal Association, in a letter to Senator Frelinghuysen, whose bill to stabilize the coal industry is before the Senate.

Mr. Cushing told Senator Frelinghuysen that when coal prices rise above a certain level, competing fuels supplant it. Corn is the newest competing fuel. Others which he mentioned are fuel oil, natural gas, wood and sometimes refuse tar. Mr. Cushing asked Senator Frelinghuysen to explain in his forthcoming speech how stabilization of coal by law will allow it to compete with these other fuels.

At the conclusion of his letter Mr. Cushing said that coal is ruled out of these Western markets not by the selling price of coal at the mine but by the railroad freight rate to market. This, he said is now 40 per cent. above war levels and has not come down in company with commodity prices.

SENATOR FRELINGHUYSEN HAS GIVEN NOTICE that he expects to address the Senate in the near future on his coal fact-finding bill. It is not improbable that he will endeavor to bring the bill before the Senate for discussion, but it is thought unlikely that he will attempt to press it to a final vote at this time.

THE GENERAL SUBJECT OF GOVERNMENT COAL PURCHASES was discussed at a conference Dec. 8 between W. R. Coyle, president of the American Wholesale Coal Association; George H. Cushing, managing director of the same organization, and W. R. Wadleigh, representing the government Committee on Co-ordination of Purchases. The discussion was along the lines of that with the representatives of the National Coal Association. The Wholesale Coal Association will formulate recommendations as to various phases of government coal purchases and will submit them to Mr. Wadleigh. Mr. Wadleigh is studying co-ordination of government purchases and is compiling suggestions from producers, consumers and foreign governments as to the most effective methods of conducting government purchases.

European Countries Show Great Progress in Industry and Trade, Hoover Reports

ECONOMIC recovery of Europe is necessarily slow and difficult, according to a review of international trade conditions issued Dec. 11 by Herbert Hoover, Secretary of Commerce. "It contains great dangers," he said, "but it is not at all as gloomy as some statements would make it appear."

"Year by year since the Armistice," he continued, "the combatant states (except Russia) show steady gains in social and political stability; they show great progress in recovery of agriculture, industry, foreign trade and communications. The one field of continuous degeneration is that of governmental finance—that is the unbalanced budgets, the consequent currency inflation, etc., of certain countries with its train of credit destruction. The commerce of the whole world obviously suffers grievously from this failure in fiscal finance and the apprehension that flows from it, and unless remedies are found the great recuperation in the five great fields of social, political, industrial, agricultural and commercial life of the past three years are endangered. Its effects spread constantly outside the borders of those states predominantly concerned, and substantially check our recovery also. . . .

"Outside of the government finance of a limited number of states the outlook is very encouraging. . . .

"In the field of economic life the progress of agricultural and industrial production year by year since the war is very marked. Famine has disappeared from Europe except in Russia. Except in countries where credit machinery is checked by danger of fiscal bankruptcy such as is the case of Austria their food, fuel and clothing supplies are sufficient albeit at a low standard of living in some places, but in even these countries the standards are much higher than the low point after the Armistice, and are thus not such a factor of discontent as would otherwise be the case. Populations have fairly settled to work and industrial efficiency and productivity is being steadily restored. The private credit institutions of the world are demonstrating their ability to handle the international trade and credits except for those regions excessively disabled by the currency demoralization. Transportation and communications have been reconstructed.

"Generally, there is progress and the problem yet to be solved are being steadily narrowed and their solutions better understood."

Larger Appropriations Asked by Geological Survey and Bureau of Mines

APPROPRIATIONS totalling \$3,381,525 have been requested by the President and the Director of the Budget for the work of the Geological Survey and the Bureau of Mines during the next fiscal year. Of that amount, \$1,721,060 is requested for the Geological Survey and \$1,660,465 for the Bureau of Mines. The Survey's estimate represents an increase of \$106,720 over the amount appropriated for its work during the current fiscal year. The Bureau of Mines' estimate requests \$186,165 more than was appropriated for the current year's work.

The major divisions of the Survey's appropriation are as follows: Topographic surveys, \$430,000; geologic surveys, \$352,000; chemical and physical researches, \$40,000; mineral resources of Alaska, \$75,000; gaging of streams, \$180,000; geological maps, \$140,000; classification of lands, \$300,000, and mineral resources, \$125,000. The major increase over last year's expenses is in connection with the topographic surveys, in which instance an additional \$100,000 is requested.

The appropriation for the mineral resources covers coal and coke statistics, which takes from \$22,000 to \$25,000 of the total, and covers the regular annual collection of production data as well as providing for the weekly reports.

The major divisions of the Bureau of Mines' appropriation are as follows: Investigating mine accidents, \$414,065; testing fuel, \$136,000; mineral-mining investigations, \$130,000; non-metallic investigations, \$35,000; petroleum and natural-gas investigations, \$135,000; mining experiment

stations, \$175,000; experiment stations and mine inspection in Alaska, \$35,000; operating mine rescue cars, \$178,000; enforcement of oil-leasing act, \$162,000. The increases asked, as compared with the amounts appropriated for the current year's work, are as follows: Investigating mine accidents, \$5,000; mineral-mining investigations, \$5,000; enforcement of oil-leasing act, \$30,000. There was a reduction of \$25,000 in the amount asked for the expenses of mining experiment stations and a reduction of \$6,500 in the amount asked for testing fuel.

The navy renews its request that \$1,000,000 of its fuel appropriation be made available for its coal-mining operations in Alaska.

Shipments of Anthracite in November Were 558,769 Tons Less Than in October

SHIPMENTS of anthracite for November, as reported to the Anthracite Bureau of Information at Philadelphia, amounted to 5,314,014 gross tons, compared with 5,872,783 tons in the preceding month and 5,765,347 tons in November, 1920. The decrease last month as compared with the other two periods is accounted for by the fewer number of working days in November as compared with October this year and by a marked falling off in the washery tonnage from November, 1920, with an additional holiday on Armistice Day last month.

Shipments by initiating carriers were as follows:

	November, 1921	October, 1921
Philadelphia & Reading	1,017,409	1,104,828
Lehigh Valley	913,737	1,048,996
Jersey Central	512,613	570,189
Lackawanna	814,131	759,492
Delaware & Hudson	756,598	898,376
Pennsylvania	429,638	492,632
Erie	503,488	618,034
New York, Ontario & Western	136,945	126,925
Lehigh & New England	229,455	253,311
Totals	5,314,014	5,872,783

Freight-Car Loadings Decrease 112,844 in Week; Idle Cars Increase 69,403

FREIGHT-CAR loadings totaled 673,827 during the week ended Nov. 26, a decrease of 112,844 cars from the previous week, due principally to the observance of Thanksgiving Day. The Nov. 26 report, however, according to the report of the American Railway Association, was 129,874 cars less than during the corresponding week of 1920, which also included the same holiday, and 65,370 cars below the total for the same week in 1919.

Coal loadings amounted to 137,432 cars, the lowest for any week since July 9.

Lessening demand for freight cars is resulting in an increase in the number of cars idle because of business conditions. On Nov. 30, reports by the American Railway Association showed 455,376 such cars, an increase of 69,403 within a week, of which 132,693 were surplus coal cars, an increase of 43,648 cars in one week.

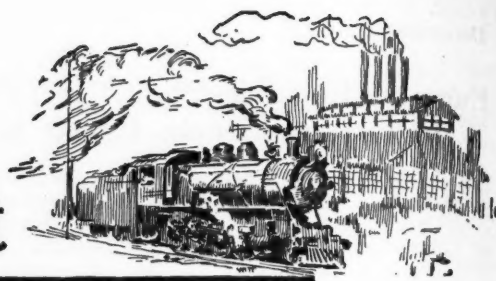
SOLICITOR GENERAL BECK, on behalf of the government, opposes the suit of the Pine Hill Coal Co. before the Supreme Court, to obtain \$239,261 from the government based upon a profit of 75c. a ton on coal of which the company is alleged to have been deprived by reason of price-fixing by the Fuel Administration. The coal company lost its case in the Court of Claims and has appealed to the Supreme Court. The government's position was stated in the suit of the Morrisdale Coal Co., covered in a news item in *Coal Age*, Nov. 17, p. 816.

J. G. Bradley, president of the National Coal Association, is interesting himself personally in the gathering of complete data from members on mine realization and prices. It is believed that this material will be found highly essential during the consideration of freight-rate reductions.

IN CONNECTION WITH THE PREPARATION of a bulletin on flame safety lamps there have been collected at the Pittsburgh experiment station about 110 flame safety lamps representing about fifty different patterns.



Production and the Market



Weekly Review

QUIETUDE characterizes the bituminous market. The usual pre-holiday slump is accentuated by general dullness in the industrial field, which has curtailed the buying power of domestic and steam users alike.

Purchasers of industrial fuels are not disposed to place orders at this time. Their stocks are adequate to meet prevailing low requirements for some time to come. This usually is the time when business people are eyeing their inventory sheets and no one is anxious to show money tied up in coal stocks, especially in view of the fact that the removal of the freight tax on Jan. 1 will depreciate the value of supplies carried over, even though it may be only a few cents per ton. In addition, all hands cling fondly to the hope of a reduction in freight rates, although late developments indicate this is unlikely before April 1 at the earliest.

STEAM PRICES UP AS DOMESTIC SAGS IN MIDWEST

Unseasonable weather favors the householder, who is inclined to delay ordering to the last moment. This tendency is not aiding the retailer, whose stocks are heavy. The mine position is the reverse of a week or so ago. Then domestic coal was in good call and steam sizes were sacrificed to increase prepared production; today mine sidings, especially in the Indiana and Illinois fields, are full of "no-bills" of domestic coal for which there is no market, while steam sizes are commanding comparatively good prices, not because consumption has increased but due to lessened output.

Prices apparently have touched their lowest point for the year. Coal Age Index of spot bituminous prices stands at 83 on Dec. 12, as compared with 84 on Dec. 5. Recently coal houses have not been quite so free in broadcasting their quotations, feeling that they are only being used as a buyers' basis from which to hammer down the market on actual trading.

The Lake season is closed. Coastwise and export

markets are inactive, and with Inland trading at a minimum it is difficult to find a ray of encouragement for the coal trade until after the holiday season.

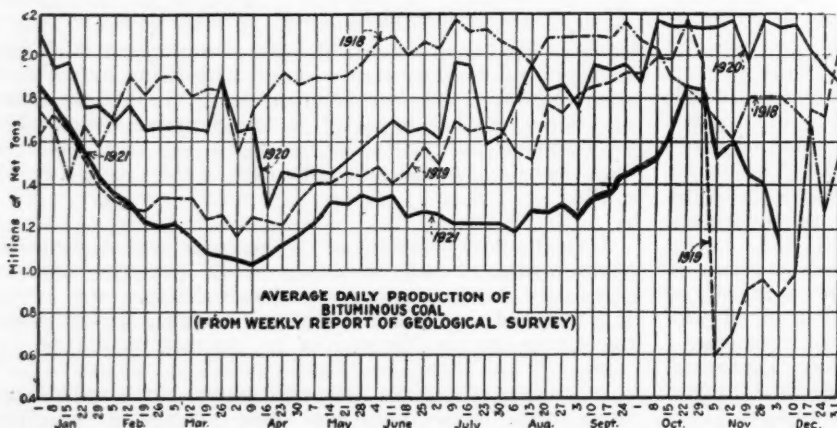
Labor evidently is feeling the continuation of poor working time. A wage cut of 27 to 30 per cent in Kentucky, an even greater reduction in Colorado, and the resumption of 15 New River operations on the open-shop basis with a return to the 1919 scale might be taken as an indication of a softening of the policy of "all or none" that has characterized the relentless refusal of the miners to liquidate high wages.

WARM WEATHER HURTS RETAIL ANTHRACITE TRADE

Anthracite demand is on the decline and production is lower. Retail business has been slowed up by the warm weather. The public is feeling poor and is not buying until forced to do so, and then only in small lots. Independent premiums are slipping on domestic coals and operations are being curtailed. Steam sizes are available on buyers' terms in the Eastern centers and the companies are storing heavily.

The coke market is dull. Inquiries are lacking, al-

NOT ONLY HAS GREAT BRITAIN concluded large coal contracts in the West Indies but she is selling coal in Boston and New York. So far as relative costs are concerned there is no reason why Great Britain cannot compete successfully for a considerable portion of the coal business on the Atlantic seaboard. Statements to this effect were made by Commerce Secretary Hoover Dec. 12. He pointed out that both labor and transportation in the United States are charging war rates whereas coal is being produced in Great Britain at pre-war costs. Mr. Hoover seems to attach considerable significance to the progress being made by British coal exporters and pointed out that they had made more headway in the last few months than has been possible for twenty years.



Estimates of Production (Net Tons)

BITUMINOUS COAL			
Week Ended:	1921	1920	
Nov. 19 (b).....	8,871,000	11,693,000	
Nov. 26 (b).....	7,102,000	11,488,000	
Dec. 3 (a).....	7,077,000	12,813,000	
Daily average.....	1,179,000	2,135,000	
Calendar year.....	379,178,000	508,342,000	
Daily average calendar year.....	1,336,000	1,781,000	
ANTHRACITE			
Nov. 19.....	1,910,000	1,993,000	
Nov. 26.....	1,677,000	1,708,000	
Dec. 3 (a).....	1,845,000	2,070,000	
Calendar year.....	82,635,000	81,894,000	
COKE			
Nov. 26 (b).....	110,000	367,000	
Dec. 3 (a).....	111,000	375,000	
Calendar year.....	5,047,000	19,567,000	

(a) Subject to revision. (b) Revised from last report.

though the majority of agreements expire Jan. 1. Contract activity is being held in abeyance until conditions clear, and in the meantime spot prices are weak.

BITUMINOUS

Production continues to decline sharply. During the first week in December the output, according to the Geological Survey, was 7,077,000 net tons, the smallest of any full-time week since April 30. Loadings on the first two days of the next week—Dec. 5-10—indicate a further slight decrease in tonnage mined.

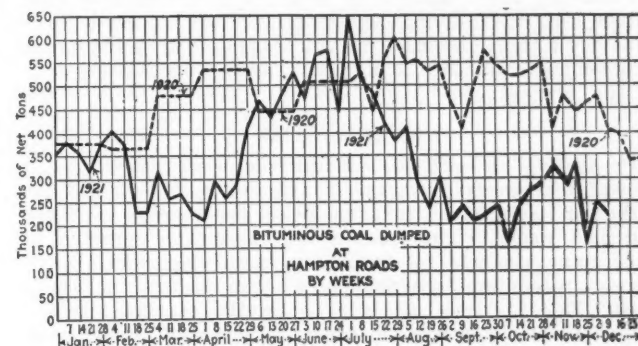
Tidewater movement in November declined to 2,554,000 net tons, or 9.2 per cent less than in October. Hampton Roads dumpings for the week ended Dec. 8 were 221,472 net tons, as compared with 250,754 the week previous.

TIDEWATER BITUMINOUS COAL SHIPMENTS, NOVEMBER, 1921 (In thousands of net tons)

Destination	New York	Phila- delphia	Balti- more	Hampton Roads	Charles- ton	Total	Total
Coastwise to							
New England.....	97	62	97	685	..	941	987
Exports.....	222	25	39	165	9	238	271
Bunker.....	222	32	25	145	1	425	502
Inside capes.....	582	183	87	16	..	286	320
Other tonnage.....		1	..	81	..	664	732
Nov. total....	901	303	248	1,092	10	2,554	2,812
Oct. total....	1,055	328	235	1,175	19	..	..

Accumulations are lighter at the Hampton Roads piers,

and this has checked the price concessions which were being made to move tonnage. New England markets are surfeited with smokeless coals and shippers are advising their mine connections to further curtail their output. All-rail movement to New England during the week ended Dec. 3 was 2,786 cars, compared with 2,928 the week preceding.



The export market is absolutely flat. Some inquiries are appearing from time to time, but our price element is so far out of line with British figures that but few quotations are being made. Cargoes of British coal being shipped to

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern		Market Quoted	Nov. 14, 1921	Nov. 28, 1921	Dec. 5, 1921	Dec. 12, 1921†
Pocahontas lump.....	Columbus.....	\$4.75	\$4.35	\$3.75	\$3.60@	\$3.75
Pocahontas mine run.....	Columbus.....	2.55	2.35	2.25	2.10@	2.30
Pocahontas screenings.....	Columbus.....	1.60	1.60	1.55	1.50@	1.75
Pocahontas lump.....	Chicago.....	4.75	4.00	3.85	2.50@	3.75
Pocahontas mine run.....	Chicago.....	2.85	2.35	2.25	2.00@	2.50
Pocahontas lump.....	Cincinnati.....	..	..	3.10	3.00@	3.50
Pocahontas mine run.....	Cincinnati.....	..	..	..	2.00@	2.50
Pocahontas screenings.....	Cincinnati.....	..	..	..	1.25@	1.50
*Smokeless mine run.....	Boston.....	4.80	4.80	4.80	4.75@	4.90
Clearfield mine run.....	Boston.....	1.95	1.80	1.80	1.60@	2.00
Cambria mine run.....	Boston.....	2.45	2.35	2.35	2.10@	2.60
Somerset mine run.....	Boston.....	1.90	1.85	1.85	1.65@	2.00
Pool 1 (Navy Standard).....	New York.....	3.05	3.00	3.00	2.75@	3.25
Pool 1 (Navy Standard).....	Philadelphia.....	3.15	3.15	3.00	2.80@	3.25
Pool 1 (Navy Standard).....	Baltimore.....	2.70	2.60	2.40	2.30	..
Pool 9 (Super. Low Vol.).....	New York.....	2.40	2.35	2.30	2.25@	2.50
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.45	2.35	2.35	2.25@	2.50
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.40	2.40	2.05	2.10@	2.15
Pool 10 (H. Gr. Low Vol.).....	New York.....	2.15	2.05	2.05	2.00@	2.15
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.15	2.10	2.05	2.00@	2.10
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	2.10	2.10	1.85	2.00	..
Pool 11 (Low Vol.).....	New York.....	1.90	1.85	1.70	1.70@	1.90
Pool 11 (Low Vol.).....	Philadelphia.....	1.85	1.85	1.85	1.75@	1.95
Pool 11 (Low Vol.).....	Baltimore.....	2.00	2.05	1.75	1.75	..
High-Volatile, Eastern		Market Quoted	Nov. 14, 1921	Nov. 28, 1921	Dec. 5, 1921	Dec. 12, 1921†
Pool 34-64 (Gas and St.).....	New York.....	1.70	1.75	1.55	1.50@	1.65
Pool 34-64 (Gas and St.).....	Philadelphia.....	1.70	1.70	1.70	1.60@	1.80
Pool 34-64 (Gas and St.).....	Baltimore.....	1.65	1.70	1.60	1.40@	1.50
Pittsburgh sc'd gas.....	Pittsburgh.....	2.65	2.65	2.65	2.60@	2.80
Pittsburgh mine run (St.).....	Pittsburgh.....	2.15	2.15	2.15	2.10@	2.20
Pittsburgh slack (Gas).....	Pittsburgh.....	1.55	1.40	1.35	1.50@	1.60
Kanawha lump.....	Columbus.....	3.30	3.10	3.00	2.75@	3.10
Kanawha mine run.....	Columbus.....	2.00	1.85	1.90	1.80@	1.95
Kanawha screenings.....	Columbus.....	1.15	1.00	1.00	0.90@	1.10
Kanawha lump.....	Cincinnati.....	..	..	2.75	2.85@	2.75
Kanawha mine run.....	Cincinnati.....	..	..	1.65	1.85@	1.75
Kanawha screenings.....	Cincinnati.....	..	..	0.95	1.00@	1.25
Hocking lump.....	Columbus.....	3.25	3.20	3.10	2.80@	3.25
Hocking mine run.....	Columbus.....	2.10	2.00	1.95	1.90@	2.00
Midwest		Market Quoted	Nov. 14, 1921	Nov. 28, 1921	Dec. 5, 1921	Dec. 12, 1921†
Franklin, Ill. lump.....	Chicago.....	3.65	3.65	3.80	3.50@	4.50
Franklin, Ill. mine run.....	Chicago.....	3.15	2.75	2.75	2.50@	3.00
Franklin, Ill. screenings.....	Chicago.....	1.50	1.85	1.75	1.60@	2.00
Central, Ill. lump.....	Chicago.....	3.50	3.35	3.35	3.00@	3.75
Central, Ill. mine run.....	Chicago.....	2.65	2.35	2.25	2.25@	2.75
Central, Ill. screenings.....	Chicago.....	1.60	1.25	1.70	1.60@	1.75
Ind. 4th Vein lump.....	Chicago.....	3.55	3.35	3.35	3.00@	3.75
Ind. 4th Vein mine run.....	Chicago.....	2.80	2.75	2.75	2.60@	2.90
Ind. 4th Vein screenings.....	Chicago.....	1.95	1.70	1.90	1.75@	2.00
Ind. 5th Vein lump.....	Chicago.....	3.05	2.80	2.80	2.60@	3.00
Ind. 5th Vein mine run.....	Chicago.....	2.45	2.45	2.45	2.25@	2.60
Ind. 5th Vein screenings.....	Chicago.....	1.90	1.35	1.50	1.50@	1.60
Standard lump.....	St. Louis.....	3.10	2.85	2.85	2.75@	2.85
Standard mine run.....	St. Louis.....	2.05	1.95	1.95	1.90@	2.00
Standard screenings.....	St. Louis.....	0.90	0.95	1.15	1.25	..
West Ky. lump.....	Louisville.....	3.00	2.75	2.60	2.25@	3.25
West Ky. mine run.....	Louisville.....	2.00	1.90	1.75	1.50@	2.00
West Ky. screenings.....	Louisville.....	0.95	1.00	0.95	0.50@	1.60
South and Southwest		Market Quoted	Nov. 14, 1921	Nov. 28, 1921	Dec. 5, 1921	Dec. 12, 1921†
Big Seam lump.....	Birmingham.....	3.75	3.65	3.65	3.00@	4.25
Big Seam mine run.....	Birmingham.....	2.15	2.00	2.00	1.50@	2.50
Big Seam (washed).....	Birmingham.....	2.30	2.30	2.30	2.15@	2.40
S. E. Ky. lump.....	Louisville.....	3.90	3.10	3.00	3.00@	3.25
S. E. Ky. mine run.....	Louisville.....	2.10	2.10	2.05	1.65@	1.85
S. E. Ky. screenings.....	Louisville.....	1.45	1.10	0.95	0.75@	1.25
S. E. Ky. lump.....	Cincinnati.....	..	..	3.15	3.00@	3.25
S. E. Ky. mine run.....	Cincinnati.....	..	..	1.75	1.65@	1.75
S. E. Ky. screenings.....	Cincinnati.....	..	..	0.85	0.85@	1.00
Kansas lump.....	Kansas City.....	5.50	5.00	5.00	5.00	..
Kansas mine run.....	Kansas City.....	4.25	4.25	4.10	4.00@	4.25
Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50	..

*Gross tons, f.o.b. vessel, Hampton Roads.

†Advances over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

		Market Quoted	Freight Rates	Nov. 28, 1921		Dec. 5, 1921		Dec. 12, 1921†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.61			\$7.60@ \$7.75		\$7.60@ \$7.75		\$7.60@ \$7.75
Broken.....	Philadelphia.....	2.66		\$7.60@ \$8.20	7.75@ 7.85	\$7.60@ \$8.00	7.75@ 7.85	\$7.00@ \$7.50	7.75@ 7.85
Egg.....	New York.....	2.61		7.75@ 8.00	7.60@ 7.75	7.50@ 8.00	7.60@ 7.75	6.50@ 7.25	7.60@ 7.85
Egg.....	Philadelphia.....	2.66		8.00@ 8.35	7.75@ 7.85	7.75@ 8.00	7.75@ 7.85	7.25@ 7.75	7.75@ 7.85
Egg.....	Chicago.....	5.63		8.00*	7.15*	8.00*	7.15*	8.00*	7.15*
Stove.....	New York.....	2.61		8.50@ 9.00	7.90@ 8.10	8.25@ 8.75	7.90@ 8.10	8.25@ 8.50	7.90@ 8.10
Stove.....	Philadelphia.....	2.66		8.75@ 9.00	8.00@ 8.35	8.50@ 9.00	8.00@ 8.35	8.50@ 8.75	8.00@ 8.35
Stove.....	Chicago.....	5.63		8.50*	7.40*	8.50*	7.40*	8.50*	7.40*
Chestnut.....	New York.....	2.61		8.50@ 9.00	7.90@ 8.10	8.25@ 8.75	7.90@ 8.10	8.25@ 8.50	7.90@ 8.10
Chestnut.....	Philadelphia.....	2.66		8.50@ 9.00	8.05@ 8.25	8.50@ 9.00	8.05@ 8.25	8.50@ 8.75	8.05@ 8.25
Chestnut.....	Chicago.....	5.63		8.25*	7.40*	8.25*	7.40*	8.25*	7.40*
Pea.....	New York.....	2.47		5.25@ 5.50	6.05@ 6.45	4.75@ 5.00	6.05@ 6.45	4.25@ 5.00	6.05@ 6.45
Pea.....	Philadelphia.....	2.38		5.00@ 5.50	6.15@ 6.25	4.75@ 5.00	6.15@ 6.25	4.25@ 6.00	6.15@ 6.25
Pea.....	Chicago.....	5.63		6.10*	5.80*	6.10*	5.80*	6.10*	5.80*
Buckwheat No. 1.....	New York.....	2.47		2.50@ 3.00	3.50	2.50@ 2.75	3.50	2.25@ 2.75	3.50
Buckwheat No. 1.....	Philadelphia.....	2.38		2.50@ 3.00	3.50	2.50@ 3.00	3.50	2.25@ 3.00	3.50
Rice.....	New York.....	2.47		1.95@ 2.25	2.50	1.50@ 2.00	2.50	1.60@ 1.75	2.50
Rice.....	Philadelphia.....	2.38		1.75@ 2.00	2.50	1.75@ 2.00	2.50	1.75@ 2.00	2.50
Barley.....	New York.....	2.47		1.00@ 1.25	1.50	1.00@ 1.25	1.50	0.75@ 1.00	1.50
Barley.....	Philadelphia.....	2.38		1.00@ 1.25	1.50	1.25@ 1.50	1.50	1.00@ 1.25	1.50
Birdseye.....	New York.....	2.47		.....	2.50	.....	2.50	.....	2.50

†Advances over previous week shown in heavy type, declines in italics.

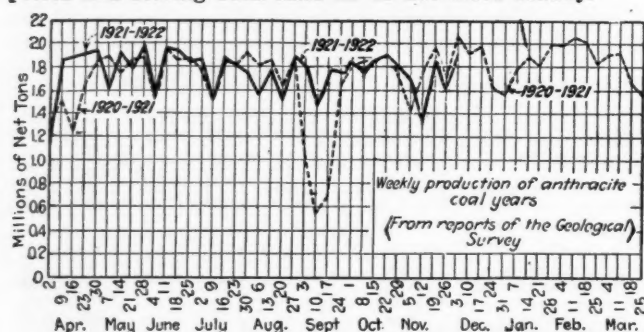
*Net tons.

our Atlantic seaboard cause little concern, as it is felt that this tonnage is being taken "in ballast" where vessels have return cargoes waiting. This practice is by no means unusual in normal times. Bunker business is holding, although the volume is affected by the limited amount of shipping being done.

Following the reduction of wages at the Colorado Fuel & Iron Co.'s operations, seven more mines in Colorado have announced their intention to cut wages. The reduction is to become effective Jan. 1, and will range up to 33½ per cent of the present scale.

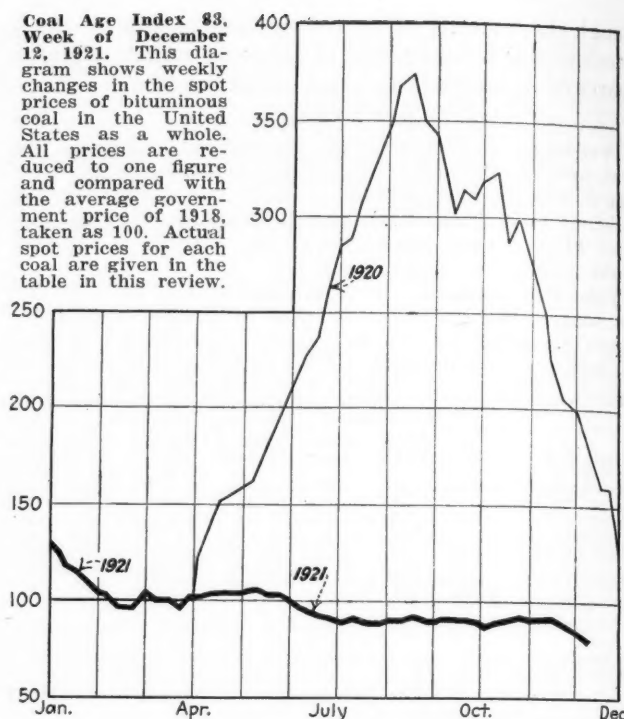
ANTHRACITE

Production of hard coal during the week ended Dec. 3 showed a recovery from the Thanksgiving period, but the output of 1,845,000 net tons was below the average of recent full-time weeks. The quiet retail market is reflected in some mine closings by the independent operators, whose domestic premiums have dropped on even the favored family sizes. Egg and pea are a drug on the market and the former is quoted in some instances as low as \$1 under company schedules. Steam sizes are in distress and are being priced according to the anxiety of the individual shipper to move tonnage, while the companies are maintaining prices and storing such sizes as do not move readily.



The Lake movement is closed. A few scattered cargoes are being cleaned up, some of which will remain in storage. Dumpings during the week ended Dec. 7 were 48,800 net tons, compared with 53,500 the week previous. All-rail

Coal Age Index 83, Week of December 12, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table in this review.



movement to New England was 3,050 cars in the week ended Dec. 3, compared with 3,184 cars the week before.

COKE

Beehive coke production amounted to 111,000 net tons during the week ended Dec. 3, or 1,000 tons in excess of the preceding week's output. The increase was centered in the Connellsville region, where furnace ovens have been active.

The freight-rate situation is a damper to coke consumers. The majority of contracts now in effect expire on Jan. 1, but there is no interest being shown in renewals for the first quarter. Connellsville quotations are: Spot furnace, \$3; first-quarter contracts, \$3.50; spot foundry, \$4@4.50.

Foreign Market And Export News

Unconcerned Over British Sales on the Pacific Coast, Government Seeks to Retain Atlantic Bunker Trade

Coal specialists at the Department of Commerce do not attach significance to the small movements of English coal to the West Coast of the United States and to Hawaii. Such coal formed the ballast in ships intended for other special return cargoes. It is not believed that there will be any further movement in appreciable quantities.

The Secretary of Commerce was told on Dec. 8 by Export Manager Rios of the Berwind-White Coal Co., that our entire coal trade with the West Indies is threatened by English competition. The situation is receiving special study both at the Department of Commerce and at the Interstate Commerce Commission.

A survey of the situation in regard to coal sold for bunkering purposes is being made by the Fuel Division of the Department of Commerce. The amount of American coal being used for bunkering has declined very greatly. The object of this special study is to ascertain

how much of the loss is chargeable to decreased sailings and to secure exact knowledge as to the proportion of ships that are bunkering abroad for the round trip.

Reports from Hampton Roads show that business continues to decline. Only four export clearances were made last week. General stagnation features the situation. The low pace set by November bids fails to fail of acceleration in December.

One agency has offered Pool 1 bunker coal through December for \$4.75, and other dealers have met the figure. Even this price has not had the effect of stimulating the market to any appreciable extent.

Business at the Newport News Piers fell off to a greater extent than at the other Hampton Roads coal centers, the record of only nine vessels cleared from there in November being one of the outstanding features of the generally dull business.

Only in bunker business is there a sign of activity. The New England trade is extremely dull and very little change has been seen in freight rates, although in some instances slight modifications have occurred.

Only thirty vessels cleared from Norfolk with coal cargoes in November, which is less than 50 per cent of normal.

Destination of British Coal Exports, October, 1913, 1920 and 1921.

Country	Quantity (Tons)		
	1913	1920	1921
Russia.....	756,112	8,008	34,648
Sweden.....	503,863	50,802	204,398
Norway.....	200,079	46,364	91,341
Denmark.....	281,369	68,235	260,919
Germany.....	835,839	.....	114,333
Netherlands.....	167,299	11,181	255,545
Belgium.....	181,591	30,899	119,325
France.....	1,077,519	745,608	879,149
Portugal.....	88,192	25,379	53,686
Azores and Madeira.....	6,556	.....	3,116
Spain.....	261,776	30,794	120,900
Canary Islands.....	67,195	12,412	19,598
Italy.....	910,513	171,837	474,412
Austria-Hungary.....	103,433	1,401	.....
Greece.....	84,033	4,987	29,393
Algeria.....	108,422	17,259	61,108
French West Africa.....	7,690	8	4,024
Portuguese West Africa.....	10,908	5,471	6,707
Chile.....	35,310	112	1,951
Brazil.....	147,943	.....	19,573
Uruguay.....	33,612	2,835	.....
Argentine Republic.....	297,148	11,043	111,792
Channel Islands.....	14,726	8,410	13,939
Gibraltar.....	25,311	49,069	35,886
Malta.....	42,068	19,528	6,057
Egypt.....	229,100	51,619	115,159
Anglo-Egyptian Sudan.....	.....	.....	3,505
Aden and Dependencies.....	20,881	5,529	.....
British India.....	14,216	.....	134,704
Ceylon.....	23,764	.....	10,904
Other countries.....	203,005	38,708	219,900

British Exports Gain; Output Improves; Wage Reductions Continue

British production continues to gain, according to a cable to *Coal Age*. The output during the week ended Nov. 26 was 4,674,000 gross tons, as compared with 4,646,000 the week previous and 4,373,000 Nov. 12.

Most of the South Wales collieries are booked up with export orders until Jan. 1. Anticipated reductions, however, are causing buyers to hold off placing much 1922 business. Quotations show no material change. Swiss railways are negotiating for 150,000 tons of patent fuel and nut coals. The Bombay and Baroda Ry. Co. has purchased 25,000 tons of Durham coals at 21s. 6d. for shipment during 1922.

The trade at Newcastle has shown a decided improvement recently, especially in steam coals where there is a good demand. In fact the demand has been such that there is a shortage in steam coals which has not been previously the case since the stoppage. Signs of appreciable revival are also manifest in gas and coking coals. The Christiania gasworks has ordered 8,000 tons of Wear special gas coal and the Nord Railways of France 4,000 tons Durham unscreened.

The east coast of Scotland has partially revived its export trade through demands from Scandinavia, although the export to this locality is still far below normal on account of the stocks of United States coal accumulated by the Scandinavians during the British strike. A certain amount of stagnation in Scotland is due to the accumulated small coals which prevent owners from producing main coal; in the meantime many pits are idle solely on economic grounds.

Throughout Britain generally accumulated stocks was appreciably dwindling, chiefly on account of the much lower prices prevailing. Not only are wages falling but individual output has improved.

Durham miners' wages for December have been brought down to 119.73 per cent above the standard prevailing in 1879. This cut involved a reduction of 23.16 per cent in November, and 77.72 per cent on October rates. Northumberland miners were also reduced 5d. @ 8½d. per shift.

At a meeting of the Joint Wages Board at Manchester miners' wages were reduced by 2½ per cent per week during December in Lancashire, Cheshire and North Staffordshire. This decision affected the wages of about 100,000 miners. In Wales during the month there has been a reduction of 1d. per shift for colliers and ½d. for laborers.

The coal stoppage entirely drained the funds of the Nottinghamshire miners with the result that a levy of £4 10s. is to be made on each adult member. The strike cost the miners in this district alone about £400,000.

Swiss Coal Imports

According to official figures just published, the imports of American coal into Switzerland rose from 550,930 net tons in 1919, valued at 91,960,000 fr., to 1,393,528 tons in 1920, valued at 275,000,000 fr. The increase in the value of the imports was about 18 per cent higher than that of the quantity imported.

SWISS COAL IMPORTS, 1919-1920

Countries	1919		
	Net Tons	Million Francs*	Dollars
United States.....	550,930	91.96	\$18,748,280
England.....	78,484	11.30	2,180,900
Germany.....	441,586	68.93	13,303,490
Belgium.....	492,287	63.24	12,205,320
France.....	329,367	48.07	9,277,510
Other countries...	7,826	1.11	214,230
Total.....	1,900,480	284,610	\$54,929,730

Countries	1920		
	Net Tons	Million Francs*	Dollars
United States.....	1,393,528	275.00	\$53,075,000
England.....	677,915	127.40	24,588,200
Germany.....	641,214	108.62	20,963,660
Belgium.....	127,078	21.40	4,130,200
France.....	69,004	10.80	2,084,000
Other countries...	9,590	2.174	419,582
Total.....	2,918,329	545,394	\$105,261,042

* American dollars figured at normal rate of exchange, 1 fr. = 19.3c.

Coal Paragraphs from Foreign Lands

GERMANY—Coal production in the Ruhr region during the week ended Nov. 28 was 1,907,000 metric tons, according to a cable to *Coal Age*.

ITALY—Cardiff steam firsts are weaker, according to a cable to *Coal Age*. Prices on the Genoa market are 39s., as compared with 39s. 3d. during the first week in December.

FRANCE—The depression in the coal market is especially marked in industrial fuel. A decree is being issued fixing the price of fuel delivered to iron and steel plants, etc., providing for a price of 65fr. for blast furnace coke, used in the manufacture of products for internal consumption and 58fr. in the case of export products.

BELGIUM—There is little to report regarding the situation of the coal market. There has been a stronger domestic demand owing to the cold weather. Industrial coal is still slow.

October production was 1,906,410 tons as compared with 1,876,390 in September and a 1913 average of 1,903,460 tons. Stocks on Nov. 1 were

increased 150,250 tons to 904,680 tons. During the first nine months of 1921 Belgium received 3,800,000 tons of German coal. Imports of French coal also increased from 700 to 236,000 tons. On the other hand, there has been a great increase in export tonnage.

SWEDEN—Imports during the week ended Nov. 19 were 12,800 tons, out of which 10,150 tons of coal and 2,450 tons of coke came from the United Kingdom.

Hampton Roads Pier Situation

N. & W. Piers,	Week Ended	
	Dec. 1	Dec. 8
Lamberts Point:		
Cars on hand.....	1,399	1,520
Tons on hand.....	72,363	76,801
Tons dumped.....	102,958	104,583
Tonnage waiting.....	9,000	17,050
Virginian Ry. Piers, Sewalls Point:		
Cars on hand.....	1,503	1,680
Tons on hand.....	75,150	84,000
Tons dumped.....	84,614	47,553
Tonnage waiting.....	9,046	5,000
C. & O. Piers, Newport News:		
Cars on hand.....	1,571	1,174
Tons on hand.....	78,000	58,700
Tons dumped.....	36,316	45,607
Tonnage waiting.....	925	1,623

Export Clearances, Week Ended Dec. 8, 1921

FROM HAMPTON ROADS:

	Tons:
For Atlantic Islands:	
Nor. S.S. Hallgferd, for Guayabal....	1,890
For Brazil:	
Br. S.S. Erlesburgh, for Buenos Aires..	5,300
For Cuba:	
Swed. S.S. Holmia, for Cienfuegos....	2,527
For Colombia:	
Nor. S.S. Tosto, for Puerto Colombia..	308

Pier and Bunker Prices, Gross Tons

(Foreign Bunker Quotations by Cable to Coal Age)

PIERS	Dec. 3		Dec. 10†	
	Low	High	Low	High
Pool 9 New York.....	\$5.40@	\$5.60	\$5.40@	\$5.60
Pool 10, New York....	5.25@	5.35	5.25@	5.35
Pool 9, Philadelphia..	5.50@	5.75	5.60@	5.60
Pool 10, Philadelphia..	5.25@	5.60	5.25@	5.60
Pool 71, Philadelphia..	5.90@	6.00	5.75@	6.00
Pool 1, Hamp. Rds....	4.80		4.70	
Pool 5-6-7 Hamp Rds.	4.25@	4.50	4.25	
Pool 2, Hamp. Rds....	4.65		4.60	
BUNKERS				
Pool 9, New York.....	\$5.70@	5.90	5.70@	5.90
Pool 10, New York....	5.55@	5.65	5.55@	5.65
Pool 9, Philadelphia..	6.00		6.00	
Pool 10, Philadelphia..	5.75@	5.85	5.65@	5.85
Pool 1, Hamp. Rds....	4.95		4.80	
Pool 2, Hamp. Rds....	4.80		4.70	
Welsh, Gibraltar.....	45s. f.o.b.		40s. f.o.b.	
Welsh, Rio de Janeiro.	65s. f.o.b.		65s. f.o.b.	
Welsh, Lisbon.....	52s. f.o.b.		45s. f.o.b.	
Welsh, La Plata.....	60s. f.o.b.		62s. 6d. f.o.b.	
Welsh, Marseilles....	125fr. f.o.b.		180 fr. f.o.b.	
Welsh, Genoa.....	45s. t.i.b.		40s. t.i.b.	
Welsh, Madeira.....	45s. f.a.s.		45s. 6d. f.a.s.	
Welsh, Teneriffe.....	45s. f.a.s.		42s. 6d. f.a.s.	
Welsh, Malta.....	47s. 6d. f.o.b.		45s. f.o.b.	
Welsh, St. Michaela..	60s. t.i.b.		60s. t.i.b.	
Welsh, Las Palmas....	45s. f.a.s.		42s. 6d. f.a.s.	
Port Said.....			51s. 6d. f.o.b.	
Belgian, Antwerp....	40s. f.o.b.		40s. f.o.b.	
Alexandria.....	49s. f.o.b.		46s. f.o.b.	
Bombay.....	35 rupees		38 rupees	
Capetown.....	42s. 6d.		42s. 6d.	

C.I.F. Prices, American Coal

(In Gross Tons)

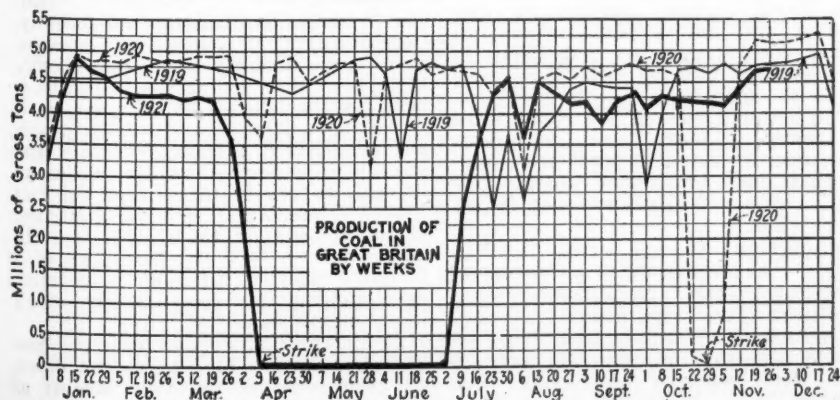
	Dec. 3		Dec. 10†	
	Low	High	Low	High
French Atlantic.....	\$8.60	\$8.85	\$8.70	\$8.80
West Italy.....	8.60	8.85	8.70	8.80
The Plate.....	8.75	9.00	8.80	8.70
Havana.....	6.70	6.90	6.75	6.60

These quotations are purely nominal and as far as can be learned, no business is being done in these markets.

Current Quotations British Coal f.o.b. Port, Gross Tons

Cardiff	Dec. 3		Dec. 10†	
	Low	High	Low	High
Admiralty, Large.....	25s. 9d.		25s. 6d. @ 26s. 6d.	
Steam, Small.....	18s. 3d.		17s. 6d. @ 18s. 6d.	
Newcastle:				
Best Steams.....	25s.		24s. 6d. @ 25s.	
Best Gas.....	22s. 3d.		22s. @ 22s. 6d.	
Best Bunkers.....	21s. 9d.		21s. @ 22s.	

† Advance over previous week shown in heavy type, declines in italics.



Reports From the Market Centers

New England

BOSTON

Market Continues Ragged—Smokeless Producers Curtail—Rumors of English Coal—Receipts at Minimum—Domestic Anthracite in Moderate Demand—Independents Slash Prices.

Bituminous—The market continues without any favorable reaction. Now that heavy accumulations at Hampton Roads have been somewhat cut down, less is heard of distress coal at Boston and Providence, but there are certain ragged price features that survive. The average quotation for Navy grade Pocahontas and New River, on cars Boston for inland delivery, ranges \$6.40@6.75, although occasional prices are heard on the \$6.25-level. Figures less than that can now be attributed to shippers of second grades. The few consumers interested in the current market are well aware, however, that coal can be bought on offers and that actual sales would show a materially lower level than the quotations named.

Many of the West Virginia producers are operating only every other week. In the New River district the curtailment is especially severe, some operations being closed down with no intention of resuming until the market improves. Export demand is of course practically nil. Slack has been reported sold at less than \$1 per gross ton, f.o.b. mines, although there is next to no demand whatever for it in this market.

There has been some interest here this week in "cargoes" of English coal said to be enroute here for sale in the open market. It has been represented that certain Cardiff could be laid down here at figures that would be closely competitive with our smokeless grades. A certain amount of Lancashire coal has come "in ballast" but we have not yet been able to confirm any actual sales. If coal is coming overseas more as an incident to other merchandise it is on an altogether different footing than if it were seriously a commercial venture. Before the war it was not unusual for certain steamers to bunker at Cardiff, West Hartlepool or Newcastle for the return trip and at the same time put aboard enough extra coal to trim the ship down to certain marks. More than likely some of the current rumors have little more foundation than this.

Central Pennsylvania operators are still faring hard. The tonnage moved is extremely light and for the most part is confined to railroads. Spot sales are at discouragingly low prices. It is nothing unusual for sales agents to quote a net ton price and then accept the same figure for a gross ton.

Receipts continue on the same meager basis as for several weeks past. Tonnage figures rose somewhat a week ago, but this was due to numerous arrivals after a week of unfavorable weather, rather than to any better inquiry.

Coastwise freights maintain about the same range that has obtained now for 60 days. The usual marking up of rates at this season has apparently been offset by the lack of orders. While large schooners may still be had on easy terms at 85c.@90c., the smaller bottoms, such as 1,800@2,500 ton barges, can now and then get charters at \$1@1.10.

Anthracite—Stove and chestnut are in fair demand, but the movement of anthracite continues dependent upon weather conditions. Egg and pea are still the hard sizes to move. Retail trade is extraordinarily dull and dealers find it difficult to plan ahead. There is a disposition to go light on stocks for the present.

The "independents" are following their usual practice of slashing prices to force output on indifferent buyers. Egg has been quoted freely here at \$7 and pea at \$5.25; or a full dollar less than certain of the company prices.

Tidewater—East

NEW YORK

Anthracite Buying Falls Off—Independent Quotations Lower—Cancellations Increase—Bituminous Situation Quiet—Early Prospects Not Bright.

Anthracite—Lower temperatures will be the only solution to the situation here. Demand is on the decline and operators find it more difficult daily to dispose of egg and pea. With regard to the steam sizes it is a buyers' market as they practically dictate the price they are willing to pay.

The wholesale market is on the decline and while the larger companies have been able to keep their output on the move, conditions have already resulted in many cancellations. Salesmen report that there are many loads on sidings between Tidewater and the mines. Unless conditions show almost immediate improvement there will be a severe cut in production. Several of the smaller operations have already suspended mining, lacking orders.

Local houses in addition to reporting slack business in this market, say that demand from the West and North has fallen off. The line trade, adjacent to New York is quiet. Dealers are well supplied and unless consumption improves considerably are not likely to re-enter the buyers' field for many weeks to come.

The better grades of the steam sizes are easier to move than the others. Some operators and shippers are dumping their coals into boats because they find it cheaper to hire boats than to pay car charges.

Bituminous—Buying is from "hand to mouth." As a result there is slow movement to tidewater. Even under present conditions there were about 1,800 cars reported at the various local piers on Dec. 8, while on the previous day 425 cars were reported as having been dumped.

The prospects for better business are not bright. Many mines have suspended operations, some of them until after New Years.

While present quotations are down to rock-bottom there have been inquiries received in some quarters regarding prices after April 1, but operators, in view of the uncertainty of labor conditions at that time, are not even making a guess at quotations.

Large consumers are practically out of the market. Their stocks are sufficiently large enough to carry them for several weeks unless business conditions improve. In addition to having well-filled bins, consumers are also delaying buying to avail themselves of the discontinuance of the war tax on freights after Jan. 1.

Average quotations are about the same as last week. It was reported that some Pool 17 was offered at one of lower piers on a basis of \$2.80 at the mines, or less than the freight rate. Odd lots of Pools 34 and 44 were said to have been offered at \$1.40 and \$1.20 respectively.

PHILADELPHIA

Retail Trade Moderately Stimulated—Wholesale Business Dull—Retail Prices Weak—Steam Sizes Indifferent—Bituminous Demand at Low Ebb—Prices Low, but Firm.

Anthracite—Viewed from the retail standpoint there has been some improvement in trade, but even this betterment is far below what had been hoped for, following the snowstorm of the Sunday previous. There could not help but be some ordering, but in no instance was a dealer rushed, and as the week wore on the retailers reported a slackening of the demand.

The wholesale trade received little or no impetus from the slightly better retail demand, and many producers are even worse off as regards the two slow sizes—egg and pea. Retailers seem determined to cut their stocks, and most of them now claim they have enough egg and pea to carry them through the winter.

There have been many rumors of independent egg coal being offered at less than company price, with few sales. The large companies are also beginning to feel the effects of numerous cancellations, and as a result are putting quite a little pea in the storage yards.

In the steam sizes there is no firmness and the consumer, after a car or two of buckwheat, can easily get it for \$2.50, while rice seems to have no demand at any price. So far the bulk of barley is moving around \$1.50, but a plentiful tonnage can be had at \$1.25.

Bituminous—An extremely small spot tonnage has been moved recently. Considering that December has never been a particularly good coal month, little hope is held out for better business for the balance of the year, as it is usually a time when business people are accustomed to take inventory and are not anxious to show money tied up in coal, especially in view of the fact that a depreciation is certain because of the removal of the freight tax. In addition they have not lost hope of a freight reduction, although from latest developments this does not seem at all likely before April 1.

It is remarkable how close the consumer is letting his stocks run down, as even some of the very largest of them when they do order a few cars are

surprised when delivery is not made inside of a week and often call upon the shipper to urge movement. Railroads are continuing their policy of curtailed buying, which has contributed much to the light production.

It would seem that current quotations will stand as the lowest to be reached this year. Recently some houses have not been so free to quote prices, feeling that they were merely being used as a basis to bear the market down.

Bunkering continues to be the best business at Tide, but light at that. There is probably a greater tonnage standing at the piers than for some weeks, as with the advent of the recent snowstorm extra tonnage was ordered in, but there was little or no increased call. The export trade is far from satisfactory, with unimportant tonnage offering and negotiations for this often hampered by difficult financial arrangements. This latter factor recently threw a moderate tonnage of high-grade fuel back on the market at a distress price.

BUFFALO

Market Extremely Quiet—No Early Improvement Looked for—Stocks too Heavy—Independent Anthracite Prices Decline.

Bituminous—"My trade has doubled lately," reports a facetious shipper. "I sold one car last week and two this week." The pleasantries come too near to actual conditions for any member of the trade to enjoy it, but it does not strike quite all of them. Some shippers are operating on the 5c. margin basis, but it is declared that nothing short of 20c. will cover expenses in the Canadian trade. Freight prepayment, slow collections and numerous rejections, added to light trade at best, make that market an especially expensive one.

The difference in production cost is having its effect. Mines paying the 1920 scale are badly handicapped and production is still falling off. Visitors from No. 8 field, which is now depending on this market more than ever, say that shutdowns are numerous and there will need to be more of them to meet conditions.

The Eastern trade is now about as slow as Canada. Consumers are heavily supplied and have been ever since the last strike was predicted. Shippers think it was a mistake to cry "Wolf" so often and some of them say they will do less of it in the future. Rumors of some big combinations of bituminous operators indicate that moves are soon to be made to help reduce production.

Prices remain at \$2.75 for Youghiogheny gas lump, \$2.50 for Pittsburgh and No. 8 steam lump, \$2.25 for Allegheny Valley and all mine run and \$1.50@1.75 for slack.

Anthracite—Demand has improved slowly since the weather became more wintry. Consumers seem satisfied that there is not to be any shortage and are still looking for lower prices. The supply is good, so that it is difficult to sell independent anthracite, even with no premium included.

Lake—Shipments are practically at an end. For the week ended Dec. 7, made by a single shipper, the loadings were 48,800 tons, of which 34,300 cleared for Milwaukee and 14,500 for Duluth. Rates are not changed. Shipments for the season are 3,765,985 tons,

and for the same time last year, 3,498,286 tons. The light movement of late, the surplus over last season of about 600,000 tons coming down to 267,000 tons, is accounted for by the fact that the upper docks are heavily loaded and the supply appears sufficient.

Coke—It is seldom that the furnaces are in the market for anything that is not already planned for. Some increase of activity is under way, but the local byproduct ovens are also starting up to correspond. Prices are \$4.15 for 72-hr. Connellsville foundry, \$3.15 for 48-hr. furnace and \$2.75 for stock.

BALTIMORE

Export Situation Absolutely Flat—Line Sales Unsatisfactory—Anthracite Ordering Below Normal.

Bituminous—December has brought the worst export and bunker situation in the recent history of this port. Only one ship has cleared so far during the month, taking 5,500 tons of cargo and 2,000 tons in bunkers, on foreign account. November had shown a decline over the month previous, only six ships under four different flags, carrying 29,438 tons cargo and 2,295 tons bunker, having cleared during that period. From Nov. 26 to Dec. 9 not a single export coal cargo cleared this port.

While the sales of best steam coals probably average \$2.10@2.15, there have been sales of excellent Pool 9 at \$2. It is no longer to be doubted that some of the producers are selling in the present market below actual production costs, or at least without profit. The same may be said of the middleman, who in quite a few instances here has probably found when he takes into consideration demurrage and rejection overhead, that he has no margin of profit to record for recent operations.

Poor grades of steam coals are way down the list, some sales around \$1.40@1.50 being noted. Best grades of gas lump of Pennsylvania production is for the most part around \$2.10, while Fairmont screened is obtainable at \$1.80@2.

Anthracite—Dealers still report the demand subnormal. There can no longer be doubt in the face of both household economy in consumption, due to financial reasons, and the continued mild winter that a considerable part of the normal shortage in receipts here has been absorbed. While more or less guess work, some dealers estimate that the present shortage in cellars and yards against the amount usually there in mid-December is about 70,000 to 80,000 tons at present.

Northwest

DULUTH

Harbor Closed—Interior Shipments Small, but Prices Firm up.

Coal shipments to the Head-of-the-Lakes have practically ceased for the season, with but six cargoes received last week and three reported on the way from lower ports. This will wind up the year's shipments, as the harbor here is filled with ice except for the ship channel, and navigation is difficult.

Thirteen of the seventeen dock companies here received coal during the month of November, according to fig-

ures compiled by shippers, which bear a close comparison with the government figures. Bituminous receipts last month were 322,540 tons as compared to 1,337,700 last year, and anthracite receipts were 157,470, compared with 255,500 last November. For the season to Dec. 1, bituminous receipts were 8,307,718 tons, an increase of 1,351,816 over last year, and anthracite receipts showed a gain of 306,195 tons with the total standing at 1,825,085 tons.

Shipments from the docks during November fell off to a considerable degree, only 18,276 cars going out, as compared with 28,722 during October and 20,453 in November, 1920. The shipments were light for reasons which have been explained before, and the unfavorable condition still continues. Dealers are following the trend of the public and waiting on the weather before buying.

Cuts in prices which were recorded last week have been called off and docks are again selling at list, and holding prices firm with a determination which indicates that they will stick to regular schedules, and take a chance of moving stocks before next spring. Indications are that several sections will be in a bad way for coal should a heavy storm materialize and take up the Northwest's railroad facilities.

MINNEAPOLIS

Demand Entirely a Weather Proposition—Price Cutting More Common—Seasonable Temperatures Needed.

When there was a touch of wintry weather a fortnight ago, it started a little increased buying. But about as soon as the snow was trodden down and the walks shoveled, the buying impetus subsided.

Of greater interest to the trade than these port-mortems, is what may be expected. So far as present indications go, there is little hope for anything more than reluctant buying. People never did and never will buy coal until they have to. But there are gradations of sullen resistance. And the present is about the Nth degree.

A deep resentment against the retail cost of coal makes the buyers strike function at its best. This situation is augmented by the difficulties of financing which makes it highly desirable to put over until another month any and all purchases that can possibly be deferred.

In the steam trade there is also less buying for the future than ever before. Much of this may be due to less industrial requirements. This does not apply to office buildings and apartments, of course, whose requirements are regulated only by the weather and the efficiency of their plants.

So the coal market is a weak and wobbling affair, with hardly a steady price outside of anthracite. For there is considerable need of turning coal into money and the usual method is not through salesmanship but through the reverse price-cutting. This is an effective way to put over an order which otherwise might remain torpid, and as such is being resorted to freely.

There are a number who are still standing pat on the matter of the list price or no sale, but they are seeing trade go elsewhere as a result of their adherence to principle. And the next few weeks—five or six—will probably tell the tale as to whether they have been commercially wise and prudent in their positions or not.

MILWAUKEE

Mild Weather Halts Buying — Dock Congestion Is Troublesome—Some Cargoes Diverted.

The status of the coal market is unchanged. The weather continues mild. Temperature is the ruling factor during the inclement months, but it is especially so this season, when buyers are balking at prices and limiting their orders to the minimum.

The yards are loaded to the limit and some dock areas which have not been fully utilized for years now contain all the coal they can hold. Anthracite sheds were so full that it was hard to accommodate some late cargoes, and vessels had to be shifted from one dock to another. One cargo was diverted to Duluth after the steamer had arrived in the harbor. There is absolutely no market for soft coal, and the trade is at a standstill, while smoldering fires threaten huge piles which cannot be moved or shifted.

November's Lake arrivals aggregated 109,927 tons of anthracite, and 247,657 tons of soft coal, making the season's total 957,972 tons of the former, and 3,589,502 tons of the latter. December, thus far, has to its credit three cargoes of hard coal, amounting to 23,190 tons, and a 7,000-ton cargo of soft coal. Two more cargoes are still booked for arrival.

Inland West**ST. LOUIS**

Mild Weather Curtails the Market on Steam and Domestic—Lower Mine Prices Threaten to Cut Retail Figures—Buyers Indifferent.

The consuming public seem to be buying from week to week and is indifferent as to what the future may hold as regards the supply of coal. Consumers have been holding off now for several months and are able to buy from a few of the cut-price dealers at figures prevailing last summer, while the larger dealers who have put thousands of tons in the bins, bought at a higher price this fall, are unable to sell at the circular price.

While Mt. Olive has some little movement, the only thing worth while seems to be the small lots of Standard. Even smokeless and anthracite have dropped off entirely and coke has declined to a great extent. A somewhat similar condition prevails in the country.

Locally steam is at a standstill. There is no storage coal coming in and the industrial situation is far from what was expected. The country steam business has also dropped off and outside of the larger towns there is practically no steam coal moving.

The movement of Standard and Mt. Olive coal to Kansas City, St. Joseph and Omaha dropped off the last week on account of the low price made by the Springfield operators.

CINCINNATI

Curtailed Production Cuts Distress Tonnage—Prices Still Unstable—Retail Trade Outlook Better.

Colder weather helped a little to revive the falling spirits of the trade last week, though a reduction in the accumulation of loaded cars originating on the N. & W. and the C. & O. did a

great deal more. Mine closings in all of the nine fields that send their product through the Cincinnati gateway has had its effect. The number of "no bills" at Portsmouth were cut in half and for the first time in several weeks there were only 600 of such to draw from.

Several operating companies with sales agents in this city have turned out to be wholesalers, claiming that it is cheaper to buy coal to supply their contracts than to go on mining at a loss.

Prices are still unstable. Smokeless stiffened a trifle. Very little difference in prices separated the offerings from the various bituminous fields.

Retail prices reflect little of the drop in wholesale figures. About the only price-cutting there has been is on bituminous mine run which wavers between \$5.50@6.25, and slack at \$4@5. The City Council has approved the ordinance setting the gas rate at a sliding scale, from 50c.@70c. as against a 35c. rate with 5c. a thousand off for prompt payment. As this makes gas considerably more costly than coal it is expected that there will be a consequent increase in retail demand.

CHICAGO

Domestic Coal in Distress—Eastern Fuels in Keen Competition—Steam Prices Strengthened by Low Production.

The market is as dull today as it has been any time this year, and when one goes back over the year, which is nearly ended, it is realized what a remark like this means in the way of business stagnation.

Illinois operators are beginning to pay some attention to the competition they are receiving from the non-union fields in the East and it is rumored, although without any definite authority, that prices on high-grade southern Illinois coals will be reduced shortly. Pocahontas mine run at \$2 and even less is an everyday occurrence, with prepared sizes bringing from \$2.50 up.

One railroad did the coal trade a real service last week. It seemed this had around seventy cars of block coal on hand, which it had to sell for freight charges. This railroad, therefore, sent out a circular to all the Chicago trade, offering the coal to highest bidder, and advising them of the quality and the circumstances under which it was shipped, etc., thus giving the whole situation wide publicity. Whether or not the cars were sold, we do not know but the fact that some operator had to take a terrific loss on this tonnage has been brought to mind very forcibly to those in the Chicago trade who have been in the habit of shipping consignment coal.

Steam prices are strengthening although the industrial situation in Chicago does not warrant any improvement. Steam production has been greatly curtailed on account of lack of demand for domestic and good southern Illinois screenings have advanced as much as 25c. a ton during the past week, with further advances freely predicted. It is expected that considerable steam coal will be thrown on the market a little later on, principally on account of the strike in the stock yards. If the strike continues much longer it will mean some of the plants will have to curtail activities and this, in turn, will mean screenings on the market.

Some authorities claim that the present dull market situation is due to some extent to the holiday season, and after the holidays an increased demand can

be expected. Backing up this claim they also call attention to the fact that many industries will take occasion to stock a little extra coal after the first of the year in order to protect themselves against any possible strike around the first of April.

COLUMBUS

Quietude Characterizes Ohio Coal Trade—Little Demand for Either Domestic or Steam—Prices Are Weaker.

With dealers fairly well stocked up and a minimum of demand from steam users the coal trade is in a state of quietude. Buying is limited strictly to present needs, which are very small when the season of the year is taken into consideration. Little hope for improvement is held out until some real winter weather appears.

The high temperatures have not made it necessary for householders to come into the market and practically all residents who were able to stock up for the winter have done so. Retail prices are somewhat weak, although the more substantial dealers are holding up fairly well. "Snow birds" are now appearing and are cutting the prices to extremely low points. Hocking lump retails \$5.75@6.50 depending on the preparation, while West Virginia splints sell \$7@7.50. Pocahontas lump is quoted \$8.50@9 and anthracite is still around \$14.50@15.

Steam demand is decreasing rather than increasing. This is due to the closing down of plants during the holiday season and also to accumulations of fuel stocks about a month or six weeks ago. Outside of public utilities there is very little demand reported as railroads are not taking any great tonnage.

Several Lake cargoes were loaded in Toledo during the week ended Dec. 10, but official announcement is made that no more will be loaded.

Production in all Ohio fields is very low. With the ending of the Lake trade the eastern Ohio field dropped off materially. Hocking Valley, Pomeroy Bend and Cambridge fields produced less than 25 per cent.

DETROIT

Sales of Bituminous Are Small—Receipts Being Held Down—Buyers Delay Purchases.

Bituminous—In both the steam and the domestic divisions, buyers are still following the dilatory policy that has featured the market for several months. Offerings of stock of high quality, from districts whose product was formerly eagerly sought after seems to awaken little interest.

Although steam plants are taking some coal, their buying is of an irregular nature and usually limited to small lots or bargains. There is a seasonal influence in the proximity of the holiday period and the fact that at this time many of the large establishments are taking inventory.

Buyers, anticipating a reduction in railroad freight rates, are not willing to purchase coal liberally at this time, but are holding off in the hope of effecting a saving by stocking up after the expected new rates are announced. Receipts of smokeless are a little more liberal than the condition of the market justifies, proving rather difficult of assimilation.

Quotations are nominal, with smoke-

less lump and egg \$4.25@4.50, mine run, \$2.25@2.50, nut and slack, \$1.25@1.50. West Virginia lump is \$3.15@3.25, egg \$2.50, mine run \$2, nut and slack \$1.15@1.25. Ohio lump is \$3@3.25, egg \$2.25@2.40, mine run \$1.75@1.90, nut and slack \$1@1.25.

Anthracite—Demand for prepared sizes is not urgent. Most of the retail yards have rather plentiful supplies at present, although stocks would be speedily depleted with a period of active buying. Extensive unemployment is a factor in reducing sales.

CLEVELAND

Slack Prices Improve as Output Falls—Market a Dead Affair—Industry Less Active and Buyers Cautious.

The single splash of color in a market of unusual somberness has been the appearance of strength in slack coals. Mine screenings which not long ago were offered freely at around \$1.25 in distress lots, have now advanced to \$1.50@1.60. Unfortunately it is impossible to report that this betterment in price is due to growing demand. The real reason of course is to be found in the shrinking supplies as production of prepared sizes slumps. It reflects also the fact that stocks of slack laid in during the rail and mine strike scares have largely disappeared.

As far as the general situation and outlook is concerned the trade seems to be in for a winter of extreme dullness. Industrial activity apparently reached its peak in October and has been diminishing slightly ever since. There is no thought that the rate of operations generally will drop back to the mid-summer pit of depression, but there is nothing in present conditions to justify hope that further gains can be made before spring.

Ingot production which forged ahead rapidly from August to October gained only 2.6 per cent in November. However, operations are still only about 50 per cent of capacity and business is showing a tendency to slide off rather than increase. The great hope in the steel industry now is for lower freight rates.

The depression in the market for coal is exceptional. Distress stocks are still appearing from Virginia and West Virginia fields and many cases of sales to pay freight charges are reported. Production in the eastern Ohio mines is at the lowest ebb since April. A few contracts are being placed for next year, but the majority of industrial consumers apparently have no intention of getting into the market before early in the year. Then they hope to be able to measure their probable requirements better than now.

Receipts of bituminous coal during the week ended Dec. 3, were 661 cars. 455 for industry, and retail 206, a decrease of 80 cars, as compared with the preceding week. Receipts were the smallest since the latter part of August.

Southwest

KANSAS CITY

Cold Weather Fails to Aid Domestic Situation—Steam Coals Scarce—Lump "No Bills" Heavy.

The Southwest had its first touch of real winter Dec. 3. Wheat crops will be

greatly benefitted by the snow as the wheat was beginning to show the need of moisture. However, the change in weather had little or no effect on the coal trade.

There was a spurt of about one day at the retail yards but no appreciable increase in demand on the mines. Steam coal continues in strong demand and domestic grades are going begging. Mines in Kansas, Arkansas, Missouri and Oklahoma are carrying large numbers of cars of unbilled lump. This is also true in Illinois and prices broke to a certain extent on the Springfield district lump and egg but held firm in Kansas. In fact, operators in Kansas are down to bed rock in their prices and have been for some time.

Prices are as follows: North Missouri lump, \$4.75, mine run, \$3.50, washed slack, \$3.25, raw slack, \$2.50; Arkansas lump, \$7@7.50, although some was sacrificed as low as \$5.50, mine run, \$3.75@4.25, slack, \$2.50@2.75; McAlester lump, \$8.50, nut, \$7, slack, \$2.50@2.75. Springfield Illinois lump is \$2.85@3.75, egg, \$2.60@3.25, slack, \$2@2.25; Franklin County Illinois lump, \$4.25, egg, \$4.05.

West

DENVER

Colder Weather Increases Demand—More Mines Announce Early Wage Cut—Dissension Among U. M. W.

Colder weather is increasing the demand. Six or seven companies have taken the lead of the Colorado Fuel and Iron Co., and announced wage cuts of 33½ per cent about Jan. 1. The thirteen mines of the Colorado Fuel and Iron Co. are turning out more tonnage daily, and this is strengthened, in part, by reports of a revolt against the United Mine Workers, in which a union leader in the Walsenburg field, is said to be taking an active part.

The men are insisting upon the recall by the national organization of Robert Foster and Frank Hefferly, organizers, who are charged with being unfair during the strike, which has not yet been officially called off.

Among those who have announced a wage cut are the Sunnyside, Turner, Dick, Brennan and Gordon Coal Mining companies. The lower scale involves a reduction from \$7.75 to \$5.25 a day for basic operations, and a reduction of 24c. a ton in diggers' rates, which range from \$1.02 to \$1.07 a ton.

SALT LAKE CITY

Demand Revives with Colder Weather—Prices Increase—Ogden Retailers at Odds.

Following an extremely warm spell, during which production was at a minimum, the weather has turned colder. This has resulted in a revival of demand and prices have strengthened accordingly. Lump is quoted \$5 f.o.b. mines, nut \$4, pea \$2.25 and slack \$1.75. City prices reflect this strength.

The retail trade has also improved, and with the better lump production, screenings are again in good supply. Dealers in Ogden are in a price war as the result of extremely keen competition.

South

LOUISVILLE

Market Shot to Pieces—Better Demand Possible in January—Wage Cuts May Reduce Prices.

Eastern Kentucky prices are weaker and are getting down to the West Virginia average. The Eastern Kentucky operators, in announcing reductions of 27 to 30 per cent in mine wage scales, have found that the miners are anxious to work, are taking it quietly, and showing willingness to cooperate in what they realize to be a tight situation.

Many mines have been down for months, labor is getting anxious for employment, especially steady employment. Even at the reduced wages not many mines are starting up, as there is not enough demand to go around.

The market may go lower when mines really get started on the new wage scale. Hazard is breaking the \$3 level by 15c., which is in line with Elkhorn and West Virginia quotations. Production of lump, while small, is not small enough to balance the steam market, and screenings are draggy at 65c.@ \$1.15, while mine run is selling down to \$1.50@1.75.

Slump in demand for prepared coal as a result of mild weather, falling market, and large stocks on retailers hands, has caused a small production of all sizes in Western Kentucky, and pea and slack is scarce.

Straight Creek and Jellico mines are reported as being almost all down, with many Harlan operations still closed. Some producers are so disgusted with conditions that they are not at all anxious to resume operations.

BIRMINGHAM

Production Slowed Down to Meet Extreme Dullness—Demand Lightest of Year—Prices Unchanged.

On account of the unsatisfactory condition of the market for both steam and domestic grades, production for December will be much less than the November output. Many operations in the Warrior and Cahaba fields have closed down entirely, while others are only making one to three days per week on account of "no market." Conditions affecting the production and marketing of coal are not only the tightest of the year, but the most unsatisfactory that the industry has faced for many years.

Rehabilitation in industrial lines has been so slow that its effect has not been felt in the coal industry. Buying of fuel is held in the most contracted limitations consistent with actual and immediate needs and no amount of inducement can effect a more liberal policy. Disinclination to accumulate further stocks this year and a belief that freight reductions will be effected at a later date are no doubt depressing factors in the present situation.

Railroads and other contract consumers are taking as little tonnage as possible under existing agreements. Bunker coal is in slight demand at Southern ports. Some bunker business has been taken on the past week for Galveston, which gives promise of further development when the coal terminals at Mobile have been completed to handle shipments moving by rail to that point.

News From the Coal Fields

Northern Appalachian

CONNELLSVILLE

Inquiry Practically Absent—Iron and Steel Prospects Poor for Next Two Months—Prices Soft.

Inquiry for Connellsville coke is practically absent. Furnaces in operation seem to be fully supplied by contract and do not buy any prompt coke at all, while foundries are running at low rates and are buying only occasionally.

Probably all furnace coke contracts now running expire at the end of the month, but consumers show no interest in the matter of renewals. An Eastern furnace interest inquires for prices on 7,500 tons for January shipment only. Here and there foundries are inquiring for prices on first quarter but do not seem to be seriously interested.

A Youngstown steel interest, which has lately been supplying byproduct coke to some merchant furnaces in the valleys, has notified the furnaces involved that it will not be able to furnish coke after Jan. 1, but no inquiries for Connellsville coke have resulted.

The iron and steel industry is somewhat less active and prospects for the next two months are more or less uncertain. Some of the merchant furnaces are piling part of their current make of pig iron and it is more likely that some merchant furnaces will blow out than that others will blow in. The common view is that conditions will be much better by February or March, but prospects for the interim are poor.

The *Courier* reports production in the week ended Dec. 3 at 48,000 tons by the furnace ovens and 35,070 tons by the merchant ovens, making a total of 83,070 tons, an increase of 8,450 tons.

EASTERN OHIO

Industrial Demand Weaker—Production Drops—Slack Is Firm but Other Grades Decline—Dull Period Ahead.

Operations continued on the retrograde during the week ended Dec. 3, and the lowest output for any week since the middle of April was registered, 300,000 tons or at the rate of 48 per cent of capacity. Association mines worked 41 per cent of possible work time during the week as compared with 43 per cent the preceding week, and approximately 45 per cent of capacity was produced.

While the railroads are curtailing their fuel orders, yet with the decreasing operations it is estimated that between 40 and 45 per cent of the tonnage mined is going to that quarter.

As yet there has been no revival in demand, and many do not expect any appreciable improvement during the present month. Sheet mills which were operating 75 per cent of capacity, are said now to be doing no better than 50 per cent, and Bar mills 25 to 30 per cent. Railroad traffic is showing little or no improvement and the weather continues mild. All of these

factors contribute to a subnormal consumption of coal. The prevailing opinion is that neither industry nor retail yards have consumed the stocks laid by early in the month and that a point of saturation still exists, and until this situation changes the demand will continue sluggish. Another element is that, with the close of the year at hand, industries desire to keep inventories as low as possible and are therefore putting off coal purchases until after the first of the year.

Owing to the diminishing production of prepared sizes, there has developed during the past ten days a scarcity of slack, and by reason of this scarcity, the price has held firm, with some tendencies to further stiffening. As to other grades, there have been some small quantities of distress coal sold.

UPPER POTOMAC

Idleness Still General—Miners Grow Restless—Discussions on Lowered Wages.

Idleness was general during the week ended Dec. 3, nearly all the Upper Potomac district mines being closed. There is a growing feeling among the miners favoring the resumption of the 1917 wage scale, on which basis operators say they would be justified in resuming work. However, union officials have so far dissuaded the men from following the lead taken by certain New River union mine workers who have returned to work at lowered wages.

PITTSBURGH

Market Remains Stagnant—Gas Slack Does a Trifle Better—Non-Union Competition too Strong.

The market continues stagnant. Business, such as it is, goes almost entirely to non-union districts, where costs are much lower. Such production as occurs is chiefly against a few contracts for steam coal, with a fair sprinkling on contracts for high grade gas, for consumers who would not be satisfied with gas coal from other districts.

Slack has been practically a drug on the market for many weeks past, being produced in excess of demand on account of production of screened coal, for gas coal contracts and current sales of domestic lump. Gas slack has been in slightly better demand in the past week and prices have strengthened.

The wide difference between operators' views as to prices, comparing Panhandle steam and domestic with high grade gas coal, is due to producers of the latter figuring a high exhaustion charge while the Panhandle operators bought their coal acreages at low prices.

CENTRAL PENNSYLVANIA

Usual Pre-Holiday Slump—November Production Figures Available—Non-Union Mines Get Bulk of Business.

Operators experienced a big slump in business during November, as compared with October. Production for the

month was 3,219,002 tons, which was 680,000 tons less than for October.

The total production for the eleven months of 1921 reached 36,130,000 tons. This indicated that the year's output will not exceed 40,000,000 tons, less than two-thirds of the 1918 production, when 60,002,000 tons were mined. In the corresponding period in 1920, production was 32,738,000 tons.

One reason for the declining output is the general industrial condition. Operators assert, however, that the refusal of the United Mine Workers to consent to a readjustment of the wage scale, so that the district may be able to compete with other fields, is the principal cause.

During the period the union mines have lost 30,020 cars of business while the non-union mines have lost but 600.

ANTHRACITE

Demand Very Sluggish—Only Popular Sizes Move Easily—Part-Time Operations.

The market is very sluggish. It is almost impossible to move pea coal and some of the companies are having difficulty in disposing of their egg. A number of the independent collieries have been forced to operate on part time the past week. One of the larger companies is also working only part time.

Some threatened trouble among the employees of the Lehigh Valley in the Hazleton region seems to have been settled without a strike. The Susquehanna Collieries, independent producers in the Shamokin region, has resumed operation, employing 7,000 men.

FAIRMONT AND PANHANDLE

Cancellations Are Heavy—Distress Tonnage Satisfies Demand—Production Even Lower.

FAIRMONT

Conditions went from bad to worse during the week ended Dec. 3, and even some of the larger companies were forced to suspend operations because of the lack of orders. Shipments of railroad fuel took a decided drop and domestic orders were being canceled in many instances as buyers found it possible to meet their requirements by taking distress coal.

NORTHERN PANHANDLE

The output was greatly restricted. Western movement was declining and the slight domestic demand was insufficient to stimulate production. Domestic fluctuated around \$2.40@\$2.70, mine run \$1.50@\$2, and nut and slack \$1.40.

UNIONTOWN

No Contract Negotiations—Freight Rate Situation a Damper—Prices Weaker.

While in ordinary times the present period would see negotiations for contracts both for coal and coke at their height there is little if any activity noted in that respect in the Connellsville region.

Although coal is sold f.o.b. to the consumer the freight rate situation has undoubtedly acted as a damper on renewed business and it is now apparent that business intends to await reductions before an effort will be made to get the industrial situation back to a normal basis.

Sales of coal are few and prices are weak, the quotations being \$1.30@\$1.45

for steam and \$1.60@1.75 for by-product. Furnace coke is also weak at \$2.75@3 but foundry is showing a little life at \$3.85@4.

Middle Appalachian

LOW-VOLATILE FIELDS

Partial Resumption to Open-Shop Basis—Demand Extremely Poor—Domestic Markets Surfeited—Prices Soft.

NEW RIVER AND THE GULF

Comparatively few mines in the New River field found it possible to operate during the week ended Dec. 3, although some mines had resumed operations on an open-shop basis under the 1917 wage scale. Demand was so poor that the output was limited to about 8,500 tons daily, representing contract shipments for the most part.

There was a marked decrease in Winding Gulf production. Out of 56 operating companies, 22 have been forced to shut down because of the inability to secure orders. Tidewater business was at a standstill and Western markets were sluggish.

POCAHONTAS AND TUG RIVER

Pocahontas production steadily declined, the output paralleling a sharp decrease in demand for all grades. There was no call for prepared coals in the Western markets, and contract business was about all that was left to producers, who managed to mine 230,000 tons during the week.

Although a reduction of output in the Tug River field was caused by a sluggish market, yet production was higher than in other smokeless territories. Fairly large shipments to steel companies having their own mines in the region accounted for this, although the Western movement still held. There was little or no spot demand for domestic sizes, and most of the production moved on contract.

HIGH-VOLATILE FIELDS

Production Declines—Demand Hits Bottom—"No-Market" Losses Heavier Than Ever.

KANAWHA

Production during the week ended Dec. 3 was not more than 7,500 tons per day, or less than 25 per cent of capacity. Demand for all grades had come to an almost complete standstill. Even the domestic call had quieted, and prices kept pace with the declining demand.

LOGAN AND THACKER

Even with adjusted wages Logan producers were not securing many spot orders. Contract business enabled some mines to continue but the output was not over 40 per cent of normal, with "no market" losses aggregating over 50 per cent.

There was an output of less than 35 per cent in the Williamson field. "No market" amounted to nearly 58 per cent of capacity. Contract orders and railroad fuel alone sustained production, as spot demand was non-existent.

NORTHEASTERN KENTUCKY

With only a weak demand it was no longer possible to market prepared

sizes and nearly all operations curtailed production. Having adjusted wages to meet declining prices, many concerns still found it impossible to secure any business.

VIRGINIA

The output dropped to less than 50 per cent of capacity. Only such companies as could prepare coal were able to operate, as domestic sizes alone were in demand. Low spot prices were also a factor in checking production and contract orders furnished the bulk of the business.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Demand Fails to Improve—Some Operations Closed Indefinitely—Lowered Wages Favored.

Not the least flicker of demand was apparent last week, regardless of the fact that production had been cut down to 15 or 20 per cent. Several of the large companies have disbanded office forces and are closed until after holidays. Others are down until the market is "born again," as they state that their coal has been marketed for several months under actual cost.

Reliable information is out that the men at several of the closed operations are anxious to go back to work on a reduced wage scale if the mines can be operated. However, while a lower scale would better enable operators to compete with other fields, it would do no good at the present time, because industries are well stocked with coal and refuse to take on more at this time. Retail yards are full to overflowing and cannot move their stocks because of continued warm weather. There seems to be nothing to do but to close and stay closed until there is some demand.

Middle West

WESTERN KENTUCKY

Demand Slow—Reduction of Prepared Production Causes Shortage of Screenings—Lull in Mine Operations.

Two or three weeks ago screenings were very plentiful and weak in price, selling low at 40c. The market has now tightened up as it is almost impossible to move lump coal. Steam coals would probably go higher except for coming into competition with eastern Kentucky screenings when the price gets too high to offset the difference in freight rates, western Kentucky screenings moving to Louisville about 50c. less than eastern Kentucky.

Pea and slack today is hard to find under \$1.25 for any fair grade, and \$1.05 for the poorest kinds. Nut and slack ranges as high as \$1.75. Retail stocks are heavy and domestic coals are in a distressed position.

MIDWEST REVIEW

Domestic Market at Standstill—"No-Bills" Heavy—Steam Scarcity Raises Prices—Outlook Gloomy.

Even nature seems to have it in for the coal industry, for instead of having seasonable December weather in the

Middle West, we are still out playing golf and living under weather conditions far more suitable for Spring. The worst of it is there is no cold weather in sight and it would take at least four weeks of blizzard, plus transportation difficulties and every other hindrance imaginable to make any real difference in the market.

Retail dealers, when they are buying at all are doing so in very small quantities and their trade reflects this attitude. Perhaps the very general prevailing idea of a reduction in freight rates is having something to do with this sluggish domestic market, but it is doubtful if the agitation for reduced rates is alone responsible. The public is feeling poor and this is the main reason why coal is being purchased in such small quantities. It is reported from fairly reliable sources that there are over ten thousand cars of domestic coal now on track at the Indiana and Illinois mines.

Prices on screenings are slowly mounting upward, principally because very few mines are operating on account of the fact that they are blocked with domestic loads which cannot be moved. A week or so ago certain high-grade southern Illinois screenings were offered at \$1.65. Today it is almost impossible to buy this grade at \$2.

From statistics at hand and from reliable sources it is outlined that the industrial situation in the Middle West is no better off than it was some time back. In fact, there seems to be a very general depression. The iron people and their allied industries are enjoying a fair measure of running time, but this is the only line on which there is a certain definite betterment. As most of the big iron people have their own coal mines, this improvement is not helping the situation in the Middle West to any great extent.

Labor conditions are fairly satisfactory. The fight between President Farrington of the Illinois United Mine workers and Mr. Lewis of the international union continues, with funds from the treasury of the Illinois union flowing out to Kansas to support the striking miners in that district. At the mines both in Illinois and Indiana, labor is settled and is paying strict attention to business and working sincerely. Perhaps this is on account of the Christmas season, as expenses are high and all the men want to accumulate a little surplus by working when opportunity affords. Running time, however, has decreased materially and probably will slump further for the next few weeks, at all events, until after the holiday season.

The check-off injunction proceedings remain unchanged. No one has been able to find out as yet when a decision can be looked for in this matter. Even the most sanguine operators are not expecting anything prompt. In the meantime, producers are taking advantage of every possible opportunity to run their mines, although the best of them cannot average more than two days a week.

SOUTHERN ILLINOIS

Mild Weather Keeps Production Down—Domestic Prices Weaken—Steam Shows Improvement—"No-Bills" Are Heavy.

Several Carterville mines have been idle now close to two weeks on account of their inability to move lump coal.

Screenings are in demand and some few mines are crushing mine run to keep up with their screenings contracts.

The mild weather is given as one reason for the congested condition of lump size and another is that a great many domestic consumers are using a cheaper fuel. Nearly all fields have cut the price of their domestic sizes, excepting southern Illinois and the Harrisburg district.

Low working time has caused uneasiness among the miners. This is giving some concern to the operators, for they fear that after the first of the year if the demand revives and their miners continue to leave that they will suffer a serious handicap.

Market conditions are such that in-

dependent operators have cut the price on nearly everything. Lump is \$3.50, egg \$3.25 and about \$3 on No. 1 nut, mine run, \$2.65 and screenings \$1.75 @ \$2, with a tendency for the screenings price to show constant improvement. Railroad tonnage showed a decrease last week.

Operating conditions in the Duquoin field are somewhat similar. Nearly all the mines have been forced to cut their prices in order to work, and at that they are only getting about one day in every two weeks.

The Mt. Olive situation is unusually bad. There is practically no domestic coal being shipped to St. Louis. A little is moving Northwest and into Chicago. The Chicago and St. Louis price is \$3.50. The country price is

supposed to be \$3.75, but this is too high for the coals that meet Mt. Olive in competition, with the result that Mt. Olive is not moving. Springfield district coal going into Mt. Olive territory is selling as low as \$3 in Kansas City and Omaha and \$3.25 in the country for 6-in. lump, while some of the other smaller sizes are down to \$2.50.

In the Standard field the old system of selling coal below cost is working again. Screenings are in good demand at around \$1.25, but the supply is short and it is somewhat of a speculators' market, with a tendency to show a decidedly better price. The railroad tonnage is light and many mines have not worked for the last two weeks, while others are getting only one and two days. No bills are heavy.

News Items From Field and Trade

ILLINOIS

Over 2,000 acres of coal land has recently been leased in the vicinity of Elkhart, Jackson County, by officials of the **Valler Coal Co.**, and other coal men from Pittsburgh, Pa. Announcement has not been made of the sinking of a new mine, but it is the general opinion in mining circles in the district.

The **Victory Coal & Mining Co.**, Mine No. 5 at Duquoin, owned by the **Boehmer Coal Co.**, has resumed operations after a shut down of several weeks.

Walter E. Rutledge, president of the **Security Coal & Mining Co.**, Chicago, has returned to his home from an annual quail hunt in Southern Illinois. He was accompanied by a party of coal men from St. Louis and Chicago.

C. E. Saxon and **David Brown**, of the United States Bureau of Mines are at present on a tour of Southern Illinois mining towns, giving instructions in mine rescue and first aid work. They are giving lessons in such towns as Harrisburg, Eldorado, Benton, Marion, West Frankfort and others.

The Big Muddy River recently overflowed its banks and flooded Mine No. 9 of the **Consolidated Coal Co.**, Murphysboro. Two adjoining mines were also closed because of the backwaters.

The **Delvalley Coal Corporation** has been incorporated with capital of \$100,000 by **J. C. Carico**, **Robert Fletcher**, **C. M. Busby**, **John Chamberlain** and **J. A. Kern**. Address **J. A. Kern**, Ridge Farm, Ill.

Fire of incendiary origin recently destroyed a large portion of the boiler room and engine house of the **National Coal & Mining Co.**, near Belleville. The loss is estimated at about \$10,000.

M. A. Rowan, mining engineer and operator of Chicago, present owner of the New Prosperity Mine at Carterville and Globe Fourth Vein Mine in Sullivan County, Ind., has recently completed a deal whereby he becomes owner of the Eastside Mine at Equality. The mine is fully developed and equipped with electrical machinery throughout.

A. F. Del Valley and Sons of West Terre Haute, Ind., coal operators, have purchased from **Albert H. McFarland** of Tilton, 105 acres of coal land, and will begin operations in the new field by early spring.

The following itinerary of the **Illinois Miners' Examining Board** for December has been announced: Dec. 8, Belleville; Dec. 9, Harrisburg; Dec. 10, Herrin; Dec. 12, West Frankfort; Dec. 13, Duquoin; Dec. 14, Staunton; Dec. 15, Carlinville; Dec. 17, Decatur; Dec. 19, Danville; Dec. 20, La Salle; Dec. 21, Peoria.

C. M. Wasson, president of the **Wasson Coal Co.**, Harrisburg, recently gave a banquet to the officials' executive board members and department heads of the company. Talks were made by various members of the company along mining principles.

The officials of the **Egyptian Coal Co.** and the **O. K. Coal Co.**, at Marissa, recently banqueted the district officials of the Illinois Central.

INDIANA

Damages of \$5,000 as the result of cancellation of a coal contract for approximately 7,000 tons, are asked of **Carl A. Seibel**, doing business under the name of the **Dunn Coal Co.**, Ft. Wayne, in a suit filed in Federal Court recently by the **Riverside Coal Co.** of Jackson, Ky. The complaint charges that in March, 1920, Seibel contracted with the **Tuttle Coal Co.**, sales agents for the plaintiff, for the delivery of 10,000 tons at \$3.80. Nov. 27, after 3,098 tons had been delivered, the defendant refused to accept further shipments. Meantime, the price of coal broke sharply. The damages represent the difference between the contract price and market price at the time of cancellation.

KENTUCKY

The **Brown & Sharp Coal Co.**, capital \$20,000, has been chartered by **G. P. Sharp**, Middlesboro; **John E. Brown**, Lejunior, and **R. O. Sharp**, Middlesboro.

John C. Lepping has affirmed ownership of the **River-Rail Coal Co.** This concern has no connection with the **Rail & River Co.**, jobbers, in the Republic Building, Louisville.

The **Kentucky Straight Creek Coal Co.** has filed amended articles, increasing its capital from \$10,000 to \$20,000.

The **Himler Coal Co.**, Himlerville, is planning to spend about \$175,000 in new developments and construction of its mining town.

H. H. Graves, general manager of the **Bolce Coal Co.**, has purchased the **Madisonville Machine Works**, and arranged with **Philip Crof**, former owner and manager, to continue as general manager of the shop.

Harry A. Thompson, formerly assistant traffic manager for the **Wholesale Coal Co.**, Pittsburgh, has been transferred to the **Covington, Ky.**, office, **Lawyers Building**.

Marion T. Knight, who has been mining engineer for **Jewett, Biglow and Brooks** at Pineville, severed his connection with this company on Dec. 1. He has taken up his duties as chief mining engineer for the **Harlan Fuel Co.**, at Yancey.

Announcement is made of the sale of the **Devon Coal Co.**, of Harlan County, to **Richmond, Virginia**, parties, who expect to develop the property on a big scale. The new name for the company is to be the **Virgin'a-Harlan Coal Co.**, capitalized at \$150,000. Headquarters of the new company are to be in Pineville.

John P. Gorman, well known operator in the Hazard and Jellico fields, has purchased the mine at Diablock, formerly known as **Four Seams Collieries Co.** This company will be known as the **John P. Gorman Coal Co.** Extensive improvements are planned.

Abner Lunsford, general manager of the **Banner Fork Coal Corporation**, belonging to the Ford interests, has been in Detroit on business.

OHIO

The **Bureau of Mines** has prepared a motion picture, which will be loaned for exhibition, covering coal stripping operations in Ohio in connection with the use of heavy excavating machinery used in mining operations.

Suit has been filed in Toledo against the **Manufacturers' Coal Co.** to have the company declared a bankrupt. The **Davis-Lewis Coal Co.**, of Toledo, the **Sunnybrook Coal Co.** and the **Mancourt Winters Coal Co.** of Michigan are the plaintiffs.

It is now announced that **R. B. Isner** is to have charge of the general Western business of the **Old Dominion Coal Corporation** with headquarters at Cincinnati.

L. B. Ramsey, president of the **Logan Fuel Co.** of Charleston, was a recent visitor in Cincinnati.

Russell V. Johnson of Cleveland has been named Ohio purchasing agent to succeed **Edward J. Shattuck** who resigned because of a controversy over coal contracts. He was treasurer under Governor **Harry L. Davis** when he was Mayor of Cleveland.

P. W. Henry, president of the **Kentonia Coal Co.**, will make the Cincinnati office of his company his headquarters until spring or later. He has been looking after the company's tidewater business with his office in New York for over a year.

Harry Walker, prominent coal operator and banker of Dillonvale, underwent an operation in **Battle Creek** recently. Mr. Walker, in addition to being president of banks in **Dillonvale** and **Tiltonville**, is president of the **H. Walker Coal Co.**, at **Adena**, and the **H. Walker Coal Mining Co.**, **Tiltonville**.

L. A. Gilson, recently appointed general sales manager of the **Maher Collieries Co.**, took up his new duties on Nov. 15th. For several years past Mr. Gilson has been fuel agent for the **Cleveland Electric Illuminating Co.**, a concern which uses upward of a million tons of coal annually.

S. J. Patterson Co., of Dayton, has secured the sole agency for seven mines of the **Solvay Collieries Co.**, located in the **Pocahontas No. 3** vein and the **Tug River** fields of the **N. & W.** in **West Virginia**.

The **Sterling Mine Supply & Manufacturing Co.** has been chartered with a capital of \$100,000 by **L. B. Turnbull, Jr.**, **H. A. Bayless**, **John R. Schindel**, **Morrison H. Waite** and **E. M. Grooms**.

The **Community Coal Co.** has been incorporated with a capital of \$20,000 to mine coal in the eastern Ohio field. Incorporators are **Thomas J. McNames, Jr.**, **H. Anderson**, **George L. Sandrock**, **James McDonough** and **Albert W. Kennon**.

A. J. Salzer, of the **Southern Coal Corporation**, with headquarters at **Fairmont**, was at **Akron** recently.

PENNSYLVANIA

The Hazel mine of the **Chartiers Creek Coal Co.**, near Canonsburg is being put in readiness for operation. The plant has been closed since early in the spring.

The question "When Is a Strike Over," which has been before the Pennsylvania Industrial Board for a year, is to be settled at a public hearing next February. The state Chamber of Commerce submitted the last suggestion to the board to the effect that when more than fifty per cent of the employees of a plant where a strike has occurred have returned to work the strike is over. This definition will be considered with others at a public hearing of the board to be held in February.

Seward E. Button, chief of the Pennsylvania Department of Mines, with Thomas J. Williams, district inspector, has made an investigation of the mine fire at the Red Ash Mine of the **Red Ash Coal Co.**, in Luzerne County. This fire, which has been raging for some time with disastrous results, will be taken in hand by the department and Chief Button says every effort will be made to extinguish it.

Improvements in progress at the Audenreid colliery of the **Lehigh and Wilkes-Barre Coal Co.** will make that plant one of the most up-to-date in the Lehigh field.

J. E. Gaskill of the Southern Coal Corporation of Fairmont was in Pittsburgh recently calling on the coal trade.

The State Workmen's Compensation Board has granted a hearing de novo in the case of Alex Phillips, Ernest, against the **Jeffers & Clearfield Coal and Coke Co.**, Punxsutawney. The claimant appealed from the order of Referee Gleason, District No. 10, refusing a petition for a review of the compensation award. In the case of Frank Cheely, Rillton, against the **Westmoreland Coal Co.**, Irwin, the board dismissed an appeal by the company from the order of Referee Snyder, District No. 5, granting a petition for reinstatement of the compensation award. The board has affirmed the findings of fact, conclusions of law and the award of the referee.

Eugene S. Rielly, L. P. Monahan and L. A. Quinlivan announce their resignation as president, vice president and secretary respectively, of the **Reilly-Peabody Fuel Co.**, whose name has now been changed to **Peabody Fuel Co.**, and also their resignation as officers of the American Coke Corporation, affiliated company of the Peabody Fuel Co. F. E. Peabody's resignation as treasurer of the Eastern Fuel Co. and its subsidiary, the Georges Creek Coal Mining Co., has been accepted. The present officers of the Eastern Fuel Co. are: Eugene S. Rielly, president, P. F. Merritt, vice president, Laurence A. Quinlivan, secretary-treasurer, E. Leon Carpenter, assistant secretary-treasurer.

Stockholders in the **Harco Coal Co.**, most of whom are residents of Johnstown, will receive their regular dividend this year of 1 1/2 per cent on preferred stock and a dividend of 50c. on all common stock. The Harco company is one of the Cosgrove interests. This is the second dividend of the company on common stock and the eighth on the preferred stock.

With the recent announcement of the adoption of the 1917 mining scale by the **Brothers Valley Coal Co.**, of Somerset, labor trouble developed and the men affiliated with the U. M. W. went on strike. The mines are being operated with a reduced force until the ranks of the striking miners can be filled. The scale announced is \$1.06 for pick mining and 65c. for machine mining; outside laborers \$4. and inside laborers \$4.77.

John C. Cosgrove and a number of associates have acquired control of the **Grazier Coal Mining Co.**, in Somerset County, near the town of Foustwell. The deal involves the purchase of approximately 1,183 shares of the mining company stock which were taken over at \$105 per share. The former owners of the stock were the J. A. Grazier estate, the H. F. Grazier estate, Hon. John M. Rose, Mrs. Etta C. Sheridan, Mrs. Charles S. Alter, Mrs. Jessie S. Grazier, Emory C. Dodson and Dr. J. H. Grazier.

The Clearfield Coal Corporation, has announced from the New York office the promotion of H. B. Douglass to the position of assistant to the president with offices at Indiana. A. J. Musser, who has been head of the purchasing department for some time, has been appointed general manager with headquarters in Indiana, succeeding Mr. Douglass.

The **Girardville Mining Co.**, Philadelphia, has notified the office of the Secretary of the Commonwealth that it has increased its capital from \$5,000 to \$500,000.

During the present year the **Pennsylvania Workmen's Compensation Board's** twelve referees have disposed of 3,391 cases. This is 776 cases more than the record for the entire twelve months of 1920, when 2,615 cases were disposed of by the referees. They still have 1,642 cases pending and but few of these will be finally disposed of before the close of the year.

The Pennsylvania State Water Supply Commission has approved the applications of the **Wallwork Coal Co.** to construct a culvert and change the channel of Red Bank Creek at Hawthorn, Clarion County, and of the **East Windover Coal Co.** to construct a bridge across Stoney Creek River near Kring Station, Somerset County.

The **Wenona Coal Co.**, Westmoreland County, has notified the Secretary of the Commonwealth at Harrisburg that it has dissolved.

Lloyd Kniffin, formerly general manager of the Hanover Bessemer Iron and Copper Co. of Fierro, New Mex., has been appointed construction engineer of the Madeira Hill Co. at Frackville.

VIRGINIA

The Norfolk office of the **Central Poca-hontas Coal Co.** has been closed, and George H. Loeb, Norfolk manager, will be transferred to the Cincinnati office of the company.

H. M. Hall, president of the Fort Dearborn Coal Co., was in Norfolk recently calling on the trade and making a survey of business conditions.

WASHINGTON, D. C.

In a report to Congress the Shipping Board states that the following claims have been settled: **Berwind White Coal Co.**, \$525 and \$3,500; **New England Fuel & Transportation Co.**, \$150, \$144 and \$3,416; **Lehigh Coal & Navigation Co.**, \$1,746; **Westmoreland Coal Co.**, \$1,124; **Logan Coal & Supply Co.**, \$6,000; **Hutchinson Coal Co.**, \$2,532 and \$4,071; **Matlack Coal & Iron Co.**, \$1,131; **Rogla Coal & Oil Co.**, \$79,705 and \$4,391.

In the annual report of the Interior Department submitted to the President by Secretary Albert B. Fall, it is stated that the general land office awarded under the leasing law 55 applications for coal prospecting permits, four leases and four licenses covering 87,781 acres in the United States and three leases for coal mining in Alaska covering 4,520 acres, and approved coal entries for 3,394 acres. Receipts from coal leases amounted to \$8,683; royalty on coal mined in Colorado was \$8,775. Coal entries received during the year amounted to 59; 66 were disposed of and 14 are pending. In the United States coal prospecting permits were issued to 55 applicants and four leases and four licenses were issued. In Alaska three coal leases were issued covering 4,520 acres, making a total of seven leases outstanding covering 6,540 acres in the Bering River field, 2,520 in the Matanuska field, 1,400 acres in the Cook Inlet and 566 in the Nenana field.

The Supreme Court, in an opinion by Justice McReynolds, dismissed the case from the California courts in which recovery of damages was sought from the **Western Fuel Co.** by administrators of M. Souza, a workman, who was killed while discharging a cargo of coal from a vessel by falling coal.

Representative Parrish has introduced a bill to pay \$564 to the **Sewell Grain and Fuel Co.**, of Vernon, Tex., which it is said was wrongfully collected from the company by the government.

The Department of Justice has filed a brief in the court asking that the refusal of the District of Columbia Court of Appeals to enjoin the Interior Department from cancelling land selections of the Santa Fe Pacific railroad, be sustained. The case originated on protest of Thomas Leaden that the selection of the lands by the railroad would create a monopoly of coal lands in the vicinity of Gallup, N. M. The government exchanged lands with the railroad but it is alleged that the lands selected by the coal company were valued at from \$62 to \$83 an acre, while the government lands received in exchange from the railroad were valued at only \$20 an acre.

The Supreme Court will not hear arguments in the **Morrisdale Coal Co.** case until early in January. This is due to the fact that argument of cases assigned for hearing in advance of cases on the regular docket will take up the intervening time, the coal case being on the regular docket and not especially assigned but taking its place in the call of the docket after cases advanced for argument.

A committee representing common stockholders of the **Reading Co.**, has asked the Supreme Court to advance for hearing the case in the Eastern District of Pennsylvania Court growing out of dissolution of the Reading combine. The controversy is between holders of the preferred and common stock of the Reading Co. It is understood that the government and opposing counsel are agreeable to advancement of the case.

The **Bureau of Mines** is conducting a number of coal investigations of interest. Co-operating with the Southern Appalachian Coal Operators' Association of Knoxville, the bureau has begun the work of sampling coal from mines in Tennessee and eastern Kentucky. The bureau has examined new coal stripping operations at Stigler, Haskell Co., Okla., where a steam shovel costing \$100,000 has been installed, the coal seam being 22 inches thick and the overburden from 12 to 20 ft. The peat bogs of Wisconsin are being examined to define their relation to the formation of coal.

The Internal Revenue Bureau plans to add ten valuation engineers on coal, timber and metals valuation of income tax returns.

WEST VIRGINIA

The **Cleveland Cliffs Iron Co.** of Cleveland has completed arrangements for the construction of a steel tippie, equipped with shaker screens, picking tables, loading boxes, etc., at its plant at Ethel, in the heart of the Logan region.

New equipment is being added to the plant of the **Robert Talbott Coal Co.** of Fairmont, at Lowesville, Monongalia County, this plant being on the Monongahela Ry. New equipment consists of a rope and button conveyor and loading equipment.

Two large steel tipples have just been built by the **Clinchfield Coal Corporation** at mines Nos. 8 and 9 at Moss, these mines being on the C., C. & O. Included in the equipment are conveyors, shaker screens, picking tables and loading booms. The company operates three mines at Moss, Va.

In connection with the development of coal property at Burch, in the Mingo field, the **Puritan Coal Co.** has installed screening, conveying and loading equipment and will soon be in a position to operate.

C. H. Jenkins, secretary and treasurer of the **Hutchinson Coal Co.** with headquarters at Fairmont, having demonstrated his prowess as a golfer, has been presented with a silver loving cup as one of the winners in the annual tournament held by the Fairmont Country Club.

The office of the **Security Coal Co.**, just organized, will be in Fairmont. This concern will operate in Monongalia County, capitalized at \$50,000. Among those active in the organization are R. Morgan, T. Frank Reed, C. F. Crane, B. M. Simpson, all of Fairmont; John R. Steel, of Bar-rackville.

The **West Penn Power Co.** of Pittsburgh has applied to the County Court of Monongalia County for permission to construct electric lines through Union district and also has applied to the Preston County court for the same privilege. From all that can be learned the West Penn company proposes to absorb a number of smaller power concerns, if possible, and to furnish power to a number of the mines in northern West Virginia.

Dave Fleming has been placed in charge of the Eccles property of the New River Collieries Co., operating in the New River field, succeeding C. P. Munch, who has resigned on account of poor health.

Fred G. Wood, general manager of the **Amigo Coal Co.** of Amigo, has returned from a four months' tour of the West.

After spending the greater part of the summer and autumn on the Pacific Coast, Colonel James Stirrat, a well-known operator of Raleigh, Logan and Fayette counties, has returned to his headquarters in the Winding Gulf district.

Major W. P. Tams, head of the Tams interests in the Winding Gulf region, and J. B. Clifton, president of the Raleigh Smokeless Fuel Co., have returned from a hunting trip in the Maine woods.

At a recent meeting of the directors of the **New River Coal Co.**, the largest company operating in the New River field, it was decided to close down all the mines of the company until there is an improvement in market conditions. With coal around \$2 per ton, it is said that it is no longer possible to operate the mines at a profit. There is also to be a substantial reduction in salaries, from the general manager down, the reduction in some instances amounting to as much as 50 per cent.

Thirty-one men were killed as the result of accidents in coal mines of West Virginia during October, according to the recent report of the **State Department of Mines**.

T. W. Arnett, president of the **Antler Coal Co.** of Fairmont was called to Elkins on business late in November.

A. Brooks Fleming, Jr., assistant to the president of the **Consolidation Coal Co.**, was in the East on a business trip recently.

The **Lundale Coal Co.**, **Lundale**, has purchased the **McGregor Coal Co.**, mines and all equipment at **Slagle**, and has started up full operation. These mines had been closed since July.

In **Greenbrier County**, some five miles from **Rainelle**, a new smokeless field is being developed, with five operating companies already installing their plants. Along with the mining development there has been built a railroad. This connects with the **Sewell Valley R.R.** near **Rainelle** and the **Sewell Valley R.R.** connects with the **Chesapeake & Ohio** at **Meadow Creek**. The **B. & O.** has offered to build 15 miles on the main line and connect with the **Greenbrier & Eastern** on the **Gauley River** side.

C. L. Logan, who has been superintendent for the **Four Seams Block Collieries Co.**, at **Diablock, Ky.**, has severed his connection with this company and will be employed at **Crumpler** as superintendent for the **Greenbrier Coal & Coke Co.**

Charles V. Critchfield, of **Mt. Vernon** and **Cleveland**, vice president of the **Domestic Coke Corporation** of **Fairmont**, was in that city recently, looking over the corporation's plant.

A. D. Showalter, after several months spent at his former home at **Denver**, has joined the forces of the **Diamond and Forest Coal companies** in **Fairmont**.

O. W. Rider, identified with the **Morgantown Coal Co.** was in the **Buffalo** market for a few days recently.

A visitor in the **Fairmont** region recently was **T. H. Johnson**, of **Bellaire, Ohio**, president of the **Chesapeake Coal Co.** Mr. Johnson also paid a visit to **Morgantown**.

At **Lewisburg**, Judge **Sharp** recently sentenced **Steve Collins**, **Walter Asbury**, **Lige Cline**, **John C. McCoy** and **Bill Estep** to two and one-half years each in the penitentiary at **hard labor**, and **William Scarborough** to two years, they having been convicted of participation in the shooting up of **Mohawk** on **Sept. 21, 1920**. These men were all members of the **United Mine Workers** who were on strike in **Mingo County**, and the evidence proved that they were endeavoring to close down the **Mohawk Coal and Coke Co.'s** property, a **McDowell County** and non-union mine.

The **Boone County Coal Corporation**, **Sharples**, announces the following changes in its organization: **A. F. Martin**, appointed sales manager; vice **R. B. Isner**, resigned; **O. M. Hayden**, appointed auditor; vice

A. F. Martin; **J. P. Colgan**, appointed purchasing agent; vice **R. B. Isner**, resigned.

BRITISH COLUMBIA

A cablegram from **London** received at the office of the **Granby Consolidated Mining, Smelting & Power Co.** announces that the **Privy Council** has handed down judgment allowing the appeal of **Charles Wilson v. the Esquimalt & Nanaimo Ry.**, a subsidiary of the **Canadian Pacific Ry.**, and dismissing a similar appeal in the case of the **Esquimalt & Nanaimo Ry. v. Elizabeth Dunlop**. The appeal was with relation to an action on the part of the railway company to set aside the **Crown grants** to coal lands, which the **Granby** company had purchased in good faith and which it had developed. The decisions not only firmly establish the titles to the coal lands with the **Granby** company, but, being a test case, it automatically establishes the right to **Crown grants** by settlers. There are at the present time 172 applications for such grants on file. Much of these cover valuable coal lands, and the aggregate amount of money involved is large.

ONTARIO

The **Fish Coal Co., Ltd.**, **Toronto**, has been awarded the contract for the supply of coal up to **April 1**, to the waterworks branch of the **Toronto Department of Public Works**.

George Bauder, of the **Berwind Fuel Co.**, **Cleveland**, and **R. M. Hamilton**, of the **Jefferson Gas Coal Co.**, **Pittsburgh**, were recent business callers on the coal trade in **Toronto**.

Traffic News

In the complaint of the **Far West Clay Co.**, an **I. C. C.** examiner recommends that shipments of coal from **Burnett, Durham, Kankaskat and Morristown, Wash.**, to **Clay City, Wash.**, during federal control were properly routed but that the rates were unreasonable.

The **I. C. C.** has postponed from **Jan. 1** to **Jan. 31**, pending investigation, the taking effect of reduced rates on coal proposed by **Henry Ford** on his road, the **Detroit, Toledo & Ironton R.R.**

The commission has authorized the **Southern Appalachian Coal Operators' Association**, the **Hazard Coal Operators' Exchange** and the **Harlan County Coal Operators' Association** to intervene in the complaint of the **Cincinnati Association of Purchasing Agents**, involving rates on bituminous coal from mines on the **L. & N.** in **Kentucky, Tennessee and Virginia**, to points in the metropolitan **Cincinnati, Ohio**, district and to points in **Kentucky** from points in **Virginia and Tennessee**.

In the complaint of the **Mississippi Valley Iron Co.**, the **I. C. C.** decides that the rate on coke from **St. Paul** to **St. Louis** in 1918 was not unreasonable.

The **L'Anguille River Ry. Co.**, and others, of **Little Rock**, complain that the rates on coal from points in **Kentucky** to **Marianna, Ark.**, are unreasonable.

In the complaint of the **Cannelton Sewer Pipe Co.**, an **I. C. C.** examiner recommends that rates on bituminous coal from mines in the **Boonville, Ind.**, district to **Huntingburg, Tell City and Cannelton, Ind.**, during federal control were not unreasonable.

In the complaint of the **Edwards and Bradford Lumber Co.**, the commission holds that the rate on coal from **Kenilworth, Utah**, to **Hillyard, Wash.**, is not unreasonable, but that it is prejudicial, and prescribes a relationship for the future.

The **Covert Gear Co., Inc.**, and others of **Lockport, N. Y.**, allege unreasonable rates on coal from points in **Pennsylvania, Ohio and Virginia** to **Lockport**.

Publications Received

Design of Atmospheric Gas Burners—Technologic Paper of the Bureau of Standards, Department of Commerce, No. 193. Pp. 62; 7 x 10 in.; illustrations and charts. The first of an extensive investigation of the design of gas burners.

Operating Regulations to Govern Coal-Mining Methods of Miners' Safety and Welfare of Miners on Leased Lands on the Public Domain—Department of the Interior, Bureau of Mines. Pp. 48; 6 x 9 in.

Artificial Gas and Byproducts in 1917-18, by **R. S. McBride**, **United States Geological Survey**, 61 pages, 41 tables, 4 diagrams. Shows average and extreme conditions of operation for various types and sizes of gas plants.

Metal-Mine Accidents in the United States, 1919—Department of the Interior, Bureau of Mines. Technical Paper 286. Pp. 99; 6 x 9 in. Containing supplemental labor and accident tables for the years 1911 to 1919 inclusive.

Oil Camp Sanitation—Department of the Interior, Bureau of Mines. Technical Paper 261. Pp. 32; 6 x 9 in.; illustrated. Describing sanitary conditions in "boom" communities and suggestions for bettering their conditions.

The Merchants' Association of New York—New York City. Year Book 1921. Pp. 338; 7 x 10 in.; illustrated. Defining the purposes of the association and description of year's activities.

The Geology and Coal Resources of Dickenson County, Virginia—Virginia Geological Survey, University of Virginia. Bulletin XXI. Pp. 224; 7 x 10 in.; illustrations, charts and tables. Prepared in co-operation with the **United States Geological Survey**.

Trade Catalogs

Sullivan Rotators—Sullivan Machinery Co., Chicago, Ill. Bulletin 70-W, replacing Bulletin 70-J. Pp. 31; 6 x 9 in.; illustrated. Description of rotator hammer drills, "DP-33," "DP-32" and "DP-37."—Advertiser.

Pulverized Fuels—Hardinge Co., New York, N. Y. Catalog 9. Pp. 16; 9 x 11 in.; illustrated. Description of the **Hardinge Mill**, adapted to the pulverization of coal.

Oil Engines—Vacuum Oil Co., New York, N. Y. Pp. 22; 9 x 11 in.; illustrated. Containing educational data on oil engines, surface ignition type.—Advertiser.

Stationary Steam Engines—Vacuum Oil Co., New York, N. Y. Pp. 31; 9 x 11 in.; illustrated. Educational work covering steam valve and cylinder lubrication, stationary steam engines.—Advertiser.

Welding Torch and Carrying Case Outfit—Davis-Bournonville Co., Jersey City, N. J. Pp. 11; 3 x 6 in.; illustrated. Description of compact welding outfit and carrying case.

Flory Capstans—S. Flory Mfg. Co., Bangor, Pa. Catalog 33. Pp. 14; 6 x 9 in.;

illustrated. Describing hand, steam and electric capstans manufactured by the company.—Advertiser.

Atlas Valves and Regulators—Atlas Valve Co., Newark N. J. Junior Catalog 21. Pp. 20; 3½ x 6 in.; illustrated. Describing reducing valves, pump governors, pressure regulators, etc.

Modern Mine Transportation—Enterprise Foundry & Machine Works, Bristol, Va.-Tenn. Pp. 23; 6 x 9 in.; illustrated. Description of manufacture and use of Enterprise Chilled Car Wheels.—Advertiser.

Power Transformers—Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin 1108. Pp. 32; 8 x 10½ in.; illustrated. Description of the more common types of Allis-Chalmers Power Transformers.—Advertiser.

Wooden Tanks for Every Purpose—The Hauser-Stander Tank Co., Cincinnati, Ohio. Pp. 62. Illustrations, charts and tables, 6 x 9 in. Describing water storage tanks for coal mines, etc.—Advertiser.

Obituary

James Redding, owner of the **Dysart Coal Co.**, **Dysart, Pa.**, died suddenly at his home in **Altoona**, recently, from heart disease. Mr. Redding was 56 years old.

J. Stuart Frame of the firm of **Frame, Friend & Sitneman, Inc.**, **Grand Central Terminal, N. Y. City**, died on **Dec. 5**. He was formerly with the **Davis Coal & Coke Co.** of **Baltimore**, and had been directly connected with the coal business since 1896.

Coming Meetings

The **American Institute of Consulting Engineers, Inc.**, will hold its annual meeting **Jan. 16, 1922**, at the **Engineers' Club**, 32 West 40th St., **New York City**, Secretary **F. A. Molitor**, 35 Nassau St., **New York City**.

New England Wholesale Coal Association will hold its annual meeting **Jan. 10, 1922**, at **Boston, Mass.**, Secretary, **R. S. Townsend**, 27 Kilby St., **Boston, Mass.**

Southern Appalachian Coal Operators' Association will hold its next meeting **Jan. 27, 1922**, at **Knoxville, Tenn.**, Secretary, **J. E. McCoy**, **Knoxville, Tenn.**

Pike County Coal Operators will hold their annual meeting **Jan. 6, 1922**, at **Pikeville, Ky.**, Secretary, **F. E. Miller**, **Pikeville, Ky.**